

# FLIGHT

*The*  
**AIRCRAFT  
ENGINEER  
&  
AIRSHIPS**

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

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## Flight

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## EDITORIAL COMMENT.



### A Splendid Example

THE Detroit Aviation Meeting, just concluded, provides a splendid example of how Government departments can assist the cause of aviation, not only by placing orders—that is done as a matter of course by any Government realising that an aircraft industry must be kept alive—but by placing orders for machines which are not strictly service machines, although incorporating features which are as desirable in service craft as in sporting machines. In the race for the Pulitzer Trophy no less than 21 machines were entered by the American Government, 16 of which were entered by the U.S. Army Air Service and five by the Navy Air Service. Evidently the American authorities realise that the machine which makes a really fast racer has most of the characteristics required in a single-seater fighter, or "Pursuit" machine, as our cousins call them. The one important performance item which, probably, these racing machines do not possess is that of climb. There does not, however, appear to be any reason why, with wings of larger area, and, of course, equipped with the required armament, such machines should not make very excellent "Chasers," and by sanctioning orders for machines of the racing type the American Treasury gives a stimulus to the sporting side which must be of the very greatest value in arousing enthusiasm for and interest in flying all over the States. The result is that, the next time the taxpayer is asked to loosen his purse-strings for the provision of aircraft, he is likely to do so much more willingly than if the same money had been spent on pure service types about which he would probably have heard little, and consequently cared rather less.

There is in the American Army and Navy Air Service entries an example which it is devoutly to be hoped our own Air Ministry and Treasury may follow. Take a machine like the Gloucestershire Aircraft Company's Mars I with Napier "Lion" engine, which we mention by reason of its being the only really fast racing machine which this country possesses today. We are quite certain that, if this machine were fitted with slightly larger wings and equipped with machine guns and ammunition, it

## DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:

<b>1922.</b>	
Oct. 16-21	Daily Mail £1,000 Gliding Competition
Oct. 26 ....	Royal Aero Club Dinner at Savoy Hotel, celebrating the Schneider Cup victory and first King's Cup Race
Nov. 30 ....	Closing date for FLIGHT Glider Designing Competition
Dec. 15- Jan. 2	Paris Aero Exhibition
<b>1923.</b>	
June ....	International Air Congress, London
Dec. 1 ....	Entries close for French Aero Engine Competition
<b>1924.</b>	
Mar. 1 ....	French Aero Engine Competition
Mar. 15 ....	Entries close for Dutch Height Indicator Competition

would make a single-seater fighter of the greatest value. Other firms would undoubtedly be very willing to turn their attention to the production of racing machines if the Air Ministry were to give financial assistance.

Apart from the value as aerial propaganda, the mere flying of such machines by service pilots would provide a form of training which could not fail to be of the greatest benefit to the service. From the structural and aerodynamic point of view, practice in producing such machines would mean progress in our designing offices and aircraft works. Nothing tries out a design so thoroughly as having to attain speeds of over 200 m.p.h. Refinements which have never been considered worthy of attention before prove sheer necessities. Wide speed range is essential if a reasonably safe landing speed is to be retained, and altogether the strong and weak points in a design are nowhere brought out more clearly than in a racer.

History has shown that the racer of today is the service craft of tomorrow. The Sopwith Schneider machine was, in its day, considered somewhat of a racing freak. Yet what happened? When war broke out this very type did a tremendous amount of extremely useful work in the R.N.A.S. The Bristol "Scout," designed by Capt. Barnwell, was the fastest machine of its day. During the early part of the war it was used as a single-seater fighter. And so one could continue giving examples of racing machines having proved their worth in the services. We strongly urge the Air Ministry and the Treasury to consider the matter, and at once. There is no time to lose. If orders are placed with firms for racing machines, bearing in mind the possibility of conversion into service craft, and such machines be entered in all important air races, not only will the sport receive a much needed stimulus, but the industry will benefit, and so will, ultimately most of all, the Royal Air Force. Our thanks to America for her excellent and practical example. It now rests with us to profit by it.

**Bravo, Raynham!** There can be no doubt whatever that the British gliding competition for the *Daily Mail* £1,000 prize and several smaller subsidiary prizes has, already, after but two days, proved a great success. Probably not even the greatest believers in the possibilities of gliding as a sport had ventured to hope for such splendid performances as have been attained during the first two days of the competition. Even among enthusiasts it is doubtful whether many seriously believed that the stipulated minimum time of 30 minutes would be attained, while we have spoken to very many who were firmly convinced that the competition would be a "wash-out." We had become so accustomed to remembering that the Germans had had several years of practice in the sport, and the relatively meagre results obtained by the French at Clermont-Ferrand seemed to bear out the general belief that a very great deal of practice both in the design and construction and flying of gliders was necessary before results of any importance could be attained.

Monday and Tuesday of this week proved such pessimism wrong. With the exception of the Dewoitine and Aachen monoplanes and Fokker biplanes, all the entries were first attempts in designing gliders, and were flown by pilots who had had no previous experience on this type of aircraft. Yet look at the results already obtained. In his fourth or fifth flight

Raynham remained aloft for 11½ minutes, and in his sixth or seventh he increased his time to close on two hours. Gordon England, who has not flown any sort of aeroplane for four years, has also put up very creditable performances, whilst several other promising machines are "in sight" to carry on during the remaining four days of the competition and to raise the duration "record" for Britain. It is not now unduly optimistic to express the hope that the German record of three hours 10 minutes, established by Herr Hentzen on the Hannover "Vampyr," may be equalled or even excelled before the close of the meeting. Raynham himself could probably, had it not been for his somewhat awkward controls, have remained up considerably longer on Tuesday, and when he has had certain minor adjustments made he will probably succeed in raising his previous time, provided always that present weather conditions continue.

Gordon England's little monoplane, the smallest of the bunch, is designed for flying in high winds, and we firmly expect him to challenge Raynham's wonderful performance before the end. He may even have done so by the time these lines appear in print. Other machines are being tuned up, some of which are designed for relatively faint winds, others for high winds, so that whatever the elements may produce during the next few days, the glorious sport should continue. The Sayers machine is very similar in general lines to the "Vampyr," and when Courtney has had a bit of experience it should prove a serious competitor to the Handasyde. The two de Havillands have not yet had an opportunity, owing to minor damages, of showing what they can do, except in a straightforward glide. Even so, they both exhibited great capacity for remaining aloft while the least bit of up-current remained to support them, and when they have been put right again they should also provide really good sport.

As to the lessons already learned, it is too early to speak as yet; so many different types have not had an opportunity of being thoroughly tested out. Next week it should be possible to form certain definite conclusions. Already it appears that no one machine can be the "best" for all conditions. One type is at its best in strong winds. Another does better in medium winds, but it does not appear that there is a very great deal to choose between them. We rather think that improvements will be along structural lines, and more connected with the practical side of handling the machines on the ground. For instance, the type of undercarriage to fit, facility in dismantling the wings for transport, and features of this kind. Otherwise it appears, as far as it is possible to see at present, that any reasonably clean design of not too great weight should be capable of good performance. As we have constantly maintained, most of the success depends upon the pilot.

The public interest in the competition is tremendous, and we sincerely trust it will be found possible to retain the range of hills from Itford to Firle permanently, so as to establish there a gliding club where, during week-ends, pilots may enjoy this exhilarating sport. The place is within easy reach of London, both by road and rail, and those who are not in a position to take up the sport actively will at any rate be able to afford a week-end ticket to Lewes, and thus combine the enjoyment of pure air on top of the hills with watching what is undoubtedly one of the prettiest sports in the world.



## THE 1922 PULITZER TROPHY RACE

THIS year's Pulitzer Race, which was flown on October 14, was won by Lieut. R. L. Maugham, flying one of the Army-Curtiss Racers, who covered the 160 miles triangular course at a speed of 206 m.p.h. Lieut. Maitland, in a similar machine, was second.

We give below some brief particulars and illustrations—for which we are indebted to our American contemporary, *Aviation*—of some of the competing machines. The outstanding feature of this year's race is the comparatively large number of new machines, specially built for this race, and entered by the U.S. Army and Navy Services. It is reported that there were 21 entries, made up as follows:—U.S. Army: Two Curtiss biplanes, two Loening monoplanes, two Thomas-Morse TM 22 monoplanes, three Verville-Sperry monoplanes,

last year's Pulitzer race, but with certain modifications, and improvements. These two machines differ only in that one year's model is fitted with Lamblin radiators, mounted on the landing chassis, whilst the other is equipped with the wing type radiator. The fuselage, of Curtiss-ply construction, is carefully streamlined and of the minimum cross-sectional area. The wings are of multi-spar construction, with Curtiss-ply covering. The petrol tank is mounted between the top plane and the fuselage, and is streamlined. A Curtiss C.D. 12, 12-cylinder engine is fitted, which develops 400 h.p. at 2,000 r.p.m. A simplified oiling system, reducing the number of tanks and parts to a minimum, is employed, in addition to an improved type of oil cooler, which maintains a constant oil temperature, low enough to permit the engine to deliver



**THE PULITZER TROPHY RACE :—**One of the two Army-Curtiss Racers entered by the U.S. Army Air Service. These machines have wing radiators, and are fitted with 375 h.p. Curtiss D 12 engines. One of these machines, piloted by Lieut. R. L. Maugham, won the trophy at a speed of 206 m.p.h.

one Verville-Packard biplane (type of 1920 Pulitzer winner), and six Thomas-Morse MB 3 pursuit biplanes. U.S. Navy: An improved Curtiss biplane, a Curtiss "Wild-cat" triplane, a Thomas-Morse MB 7 monoplane, one "Bee-Line" (Booth-Thurston) monoplane, and the Navy "Mystery" plane.

**The Curtiss Machines.**—The Curtiss fleet consisted of a Navy racer, biplane, and a racing triplane, entered by the U.S. Navy, and two Army racers, entered by the U.S. Army. An outstanding feature with three of these machines may be said to consist of the employment of wing-radiators—radiators built into and following the contour of the wing itself—instead of the usual type of water-cooling radiators. We refer to this again later. The Navy racer is similar to the type which won

its maximum horse-power at full throttle. Aluminium and duralumin have been made use of to the fullest possible extent, including in many instances piping, tanks, fittings, etc. The principal characteristics of the Navy Racer are as follows:—Span (overall), 22 ft. 8 ins.; length, 21 ft.; height, 8 ft. 11 ins.; chord, 4 ft.; gap, 4 ft.; stagger, 1 ft. 3 ins.; wing section, Sloan; angle of incidence, 0°; dihedral (lower), 2°; total wing area, 168 sq. ft.; area of ailerons, 18 sq. ft.; elevators, 9.2 sq. ft.; tail plane, 12.6 sq. ft.; fin, 4.8 sq. ft.; rudder, 4.8 sq. ft.; weight empty, 1,735 lbs.; weight laden, 2,165 lbs.; loading/sq. ft., 12.5 lbs.; loading/h.p., 5.24; speed range, 70-190 m.p.h. It is estimated that with the wing-radiators an increase in speed of 10 m.p.h. is obtained.



**THE PULITZER TROPHY RACE :** The Navy-Curtiss Racer entered by the U.S. Navy. This machine has radiators embodied in the wings (the previous Navy-Curtiss Racer having Lamblin radiators), 400 h.p. Curtiss CD 12 engine.

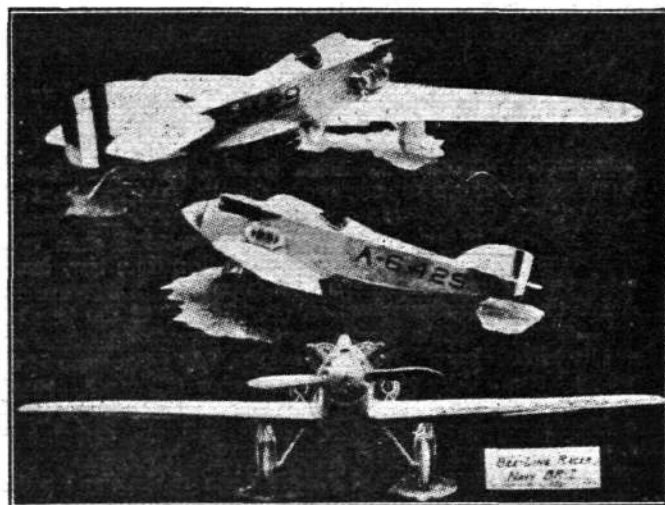
The Army Racers are the latest development of Curtiss practice. The fuselage is of Curtiss-ply, a strong light 2-ply veneer of laminated spruce,  $\frac{3}{8}$ -in. thick, and like the Navy Racer, well streamlined. The weight of the fuselage complete is only 127 lbs. The projected area of the fuselage is 25 per cent. less than that of the Navy Racer, which won last year's race. The wings are multi-spar, Curtiss-ply covered, with wing-radiators. These latter consist of corrugated sheet brass radiator surfaces which replace the wing covering, top and bottom, maintaining the true shape of the wing section. The flow of air around the wings thus cools the engine water without any extra head resistance. It may be of interest to note this type of radiator was developed by the Curtiss Co. during the last two years, and has been given a thorough "try-out," on one occasion a cross-country flight of about 1,500 miles at an average speed of 100 m.p.h. being made by a Curtiss "Oriole" fitted with this radiator.

The Army Racer has single I-inter-plane struts, and the fixed tail surfaces are of the Curtiss-ply cantilever construction, without any external bracing. The control surfaces—ailerons, elevators and rudder—are of steel and duralumin, with fabric covering, and are all operated by means of internal cables and tubes. The wing section employed is the Curtiss No. 27. A Curtiss D. 12, 375 h.p. 12-cylinder V engine is fitted. By the employment of the single-strut type of landing chassis the resistance of this unit has been reduced two-thirds, whilst retaining the strength and rigidity of the conventional V-chassis. The wheels are provided with cupped discs of aluminium which cover the spokes and hub, and a fabric covering is applied over the wheel and tyre in such a manner that a smooth oval section is presented to the air stream. The axle is enclosed in a lifting section fairing, 7 sq. ft. area. Characteristics: Span, 19 ft.; length, 18 ft. 11 ins.; height, 7 ft. 10 ins.; chord, 3 ft. 10 ins.; gap, 3 ft. 10½ ins.; stagger, 7½ ins.; angle of incidence, 0°; no dihedral; total wing area, 131 sq. ft.; area of ailerons, 9.25 sq. ft.; tail plane, 11.2 sq. ft.; elevators, 9.2 sq. ft.; fin, 4.9 sq. ft.; rudder, 4.9 sq. ft.; weight empty, 1,454 lbs.; weight laden, 1,950 lbs.; loading/sq. ft., 14.1; loading/h.p., 5.2 lbs.; speed range, 70-200 m.p.h.

The Navy Triplane is a development of the 1920 "Wild-cat" monoplane, which "grew" its extra wings, first a pair at the 1920 Gordon-Bennett race in France, and then another pair at Omaha race in 1921, as a result of the difficulty experienced in landing at speed on the aerodromes at the places mentioned above. This year's machine, however, has been practically rebuilt, but unfortunately an illustration and full particulars of this machine are not available at the moment. It is fitted with a Curtiss 430 h.p. C. 12 geared type engine, and has the multi-spar wing construction and Curtiss-ply monocoque fuselage, as in the other models. A Curtiss flat plate radiator, mounted on the fuselage, is fitted. Characteristics: Span (all planes), 20 ft.; length, 19 ft. 3 ins.; height, 8 ft. 6 ins.; chord (top), 3 ft. 6 ins., (others) 3 ft.; gap, 2 ft. 8 ins. (top) and 2 ft. 7 ins.; stagger, 1 ft.; angle of incidence, 0°; dihedral, 2½° (lower); total area, 179.5 sq. ft.; weight empty, 1,936 lbs.; weight laden, 2,406 lbs.; loading/sq. ft., 13.4 lbs.; loading/h.p., 5.5 lbs.; speed range, 70-196 m.p.h.

**The "Bee-Line" Racer.**—The Navy also entered a monoplane, known as the "Bee-Line" Racer, or Navy B.R. 2, designed and built by Messrs. Booth and Thurston, of the

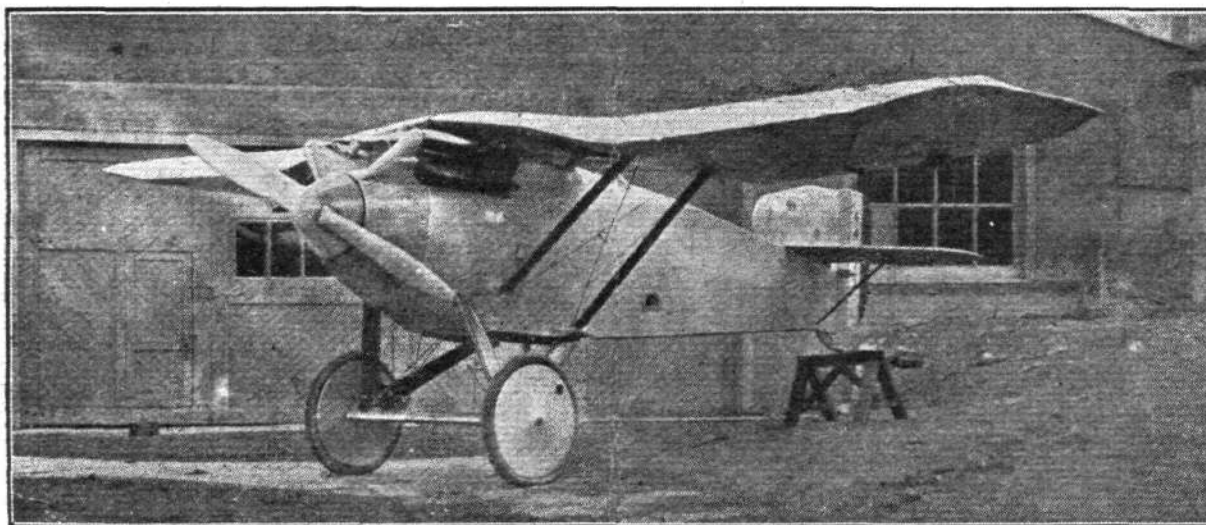
Aerial Engineering Corp., Hammondsport, N.Y., who were formerly with the Curtiss Co. in 1921 and worked on the Curtiss Racer of that year. The B.R. 2 is a cantilever monoplane possessing many original features, and having the wings mounted low on the fuselage, as in the Junkers. A retractable landing gear is fitted, the entire chassis being withdrawn



**THE PULITZER TROPHY RACE: The Navy BR-2 ("Bee-Line") monoplane, 380 h.p. Wright.**

into the fuselage once the machine is in the air. This machine, we believe, also utilises the wings as a radiator for cooling the engine water, the wings being covered by a thin sheet of copper, under which the water circulates. The wings have a pronounced taper from root to tip both in plan form and in thickness. The fuselage is of deep rectangular section. The engine is a 400 h.p. high compression Wright model H. 3. Characteristics: Span 28 ft. 1 in.; length, 21 ft. 1½ ins.; height, 6 ft. 4½ ins.; chord, 6 ft. to 2 ft.; dihedral angle, 3½°; wing section, Göttingen, 387; total wing area, 104 sq. ft.; weight (fully laden), 2,020 lbs.; loading/sq. ft., 19.4 lbs.; loading/h.p., 5 lbs.; speed range, 70-190 m.p.h.

**The Loening Racers.**—The two Loening Racers, entered by the Army, are of a similar type, possessing several outstanding features. They are cantilever monoplanes, with the wings low down on the fuselage. The heavy continuous wing spars of the main wing structure carry the landing chassis, whilst the engine is also mounted directly on them. This engine, the new 600-630 h.p. 12-cylinder Packard, specially developed for the Army Air Service, is relatively so large in comparison with the machine that the engine itself extends over a third the distance of the fuselage back to the rear spar of the wings. The petrol tank, with a capacity for 1½ hrs., is mounted immediately behind the engine, and behind the tank, at the rear of the wings, is the pilot's cockpit, from which an excellent range of vision is obtained. The wings, fuselage, landing chassis and tail weigh only 500 lbs., or one-third the weight of the power plant, including engine, radiator, water, etc. As the



**THE PULITZER TROPHY RACE: The Thomas-Morse MB7 "parasol" monoplane, entered by the U.S. Army Air Service, 400 h.p. H3 Wright.**



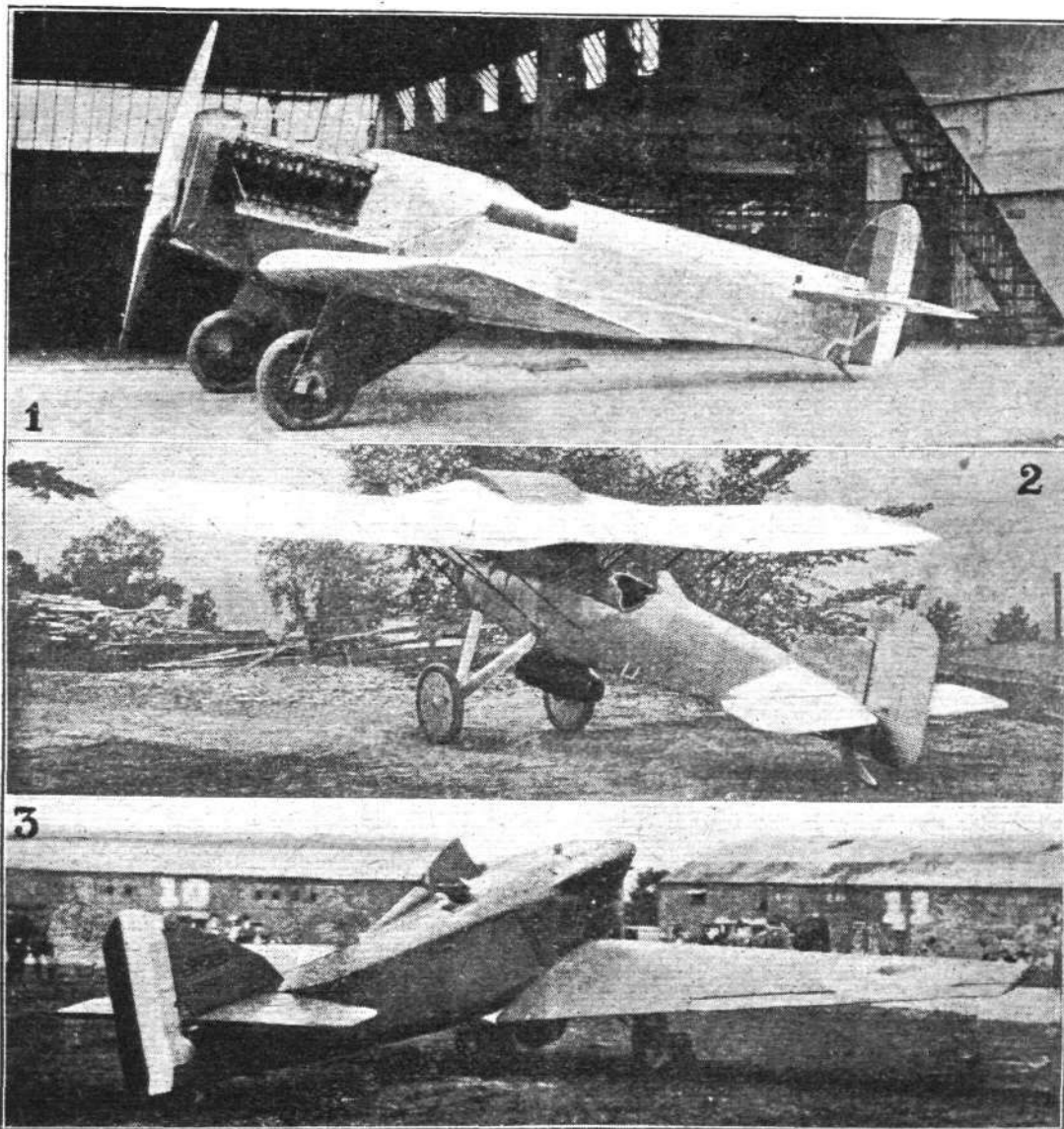
gross weight of the machine is 2,700 lbs., the loading per horse-power is as low as 4.3 lbs., whilst the loading per square foot is 15.5, so that the claim for high speed together with extreme manoeuvrability is not unreasonable. Further particulars, as regards construction, etc., are not yet available, but the principal characteristics are as follows:—Span, 27 ft.; length, 21 ft.; height, 7 ft.; total wing area, 174 sq. ft.; weight (laden), 2,700 lbs.; loading/h.p., 4.3 lbs.; loading/sq. ft., 15.5 lbs.; speed range, 72-190 m.p.h.

*The Thomas-Morse Machines.*—In addition to six M.B. 3 biplanes, which are more or less conventional pursuit-type machines, and one M.B. 7, a parasol monoplane similar to that entered in last year's race, the Army had two new Thomas-Morse racers in this year's race of a very interesting type. Unfortunately, detailed particulars of these two machines, which were of the same type, are lacking, but it will be seen from one of the accompanying illustrations that

weight (laden), 2,750 lbs.; loading/h.p., 4.5 lbs.; loading/sq. ft., 16 lbs.

Apart from the general design, the M.B. 7 is of orthodox wood construction, with fabric-covered wings and fuselage. The principal characteristics are: Span, 24 ft.; length, 18 ft. 6 ins.; height, 7 ft. 3 ins.; chord (mean), 5 ft.; angle of incidence, 1°; dihedral, 5°; wing section, mod. U.S.A., 27; total wing area, 112 sq. ft.; engine, Wright H. 3, 400 h.p.; weight (laden), 2,000 lbs.; loading/h.p., 5 lbs.; loading/sq. ft., 17.8 lbs.; speed range, 60.5-180 m.p.h.

*The Verville-Sperry Racers.*—The Verville-Sperry machine, two of which were entered by the Army, is also an "underslung" cantilever monoplane, designed by Alfred V. Verville, of McCook Field, the builders being the Sperry Aircraft Co., of Farmingdale, L.I. Amongst the most interesting features are a retractable wide-track landing gear, with the wheels so arranged that they extend out under the wings, and fold up



**THE PULITZER TROPHY RACE:** Three of the monoplanes entered by the U.S. Army Air Service. 1. The Loening cantilever, 600 h.p. Packard. 2. The Thomas-Morse TM 22 all-metal "parasol," 600 h.p. Packard. 3. The Verville-Sperry cantilever, 380 h.p. H3 Wright (racing model).

the general lines resemble those of the M.B. 7 in that it is a parasol monoplane of the "semi-cantilever" type, with an arch or hump in the centre of the wings. The T.M. 22, as this new type is styled, differs considerably otherwise, however, for it is constructed entirely of metal. The wings, tail surfaces and fuselage are covered with corrugated sheet duralumin, except for the fore part of the fuselage, where the metal is quite smooth. This metal is also employed in the construction of the fuselage, wing and tail plane structures, but steel tubing is used for the engine mounting. The engine is the new 600 h.p. "2025" Packard previously referred to. The wings are mounted above the fuselage by four struts each side of the fuselage, the first two front ones of each set forming an inverted V. The distance from the attachment of these struts on the wings to the wing tip equals about one-third the total span. Characteristics: Span, 29 ft.; length 19 ft. 9 ins.; chord, 6 ft.; total wing area, 172 sq. ft.;

under the latter when the machine is in flight. What is claimed to be an absolutely unique feature is a shock-absorbing wheel, the axle or hub of which is embedded in rubber. The fuselage and tail surfaces are constructed completely of steel tubing, and the tail plane is adjustable. Another feature is the shock-absorbing engine mounting, the engine bolts being embedded in rubber spools, so that much of the vibration when the engine is running on full throttle is eliminated. The wings are double cambered, and of wood construction, with box spars, and fabric covered; the leading edge is reinforced with veneer. The forward half of the fuselage is covered with aluminium, and the rest with fabric. A Wright racing model H. 3, 380 h.p. engine is fitted. Characteristics: Span, 32 ft. 4 ins.; length, 22 ft.; chord, 5 ft.; total wing area, 150 sq. ft.; weight (laden), 2,225 lbs.; loading/h.p., 5.9 lbs.; loading/sq. ft., 15 lbs.; speed range, 67-190 m.p.h.

# GLIDING, SOARING AND AIR-SAILING

Those wishing to get in touch with others interested in matters relating to gliding and the construction of gliders are invited to write to the Editor of *FLIGHT*, who will be pleased to publish such communications on this page, in order to bring together those who would like to co-operate, either in forming gliding clubs or in private collaboration.

HENRY FARMAN is practising gliding outside Boulogne on one of his "Moustiques." Already he has made a considerable number of flights, lasting on an average 4 mins. each. In the meantime, the glider should soon arrive at Itford Hill if it is to take part in the British competition.

SEVERAL well-known aircraft constructors are following with interest the happenings on the South Downs. Mr. C. R. Fairey is staying there *en famille*. Capt. Geoffrey de Havilland arrived on Sunday last by air, and landed in a field below the hill. Mr. F. Handley Page, in spite of a damaged undercarriage, was also an interested spectator. On enquiry, we learned that "H. P." had been playing golf, and that in making a drive he kept his foot flat on the ground, with the result that there was a crack as if he had broken his club, and his knee joint was found to be wrenched. He had to go to bed for a fortnight, and Sunday last was his first day out. With the aid of crutches Mr. Handley Page was able to get about, but not without difficulty, and climbing up and down the slopes around Itford is not exactly suitable exercise for a man with a broken leg. Still, wild horses could not have kept "H. P." away from the gliders. All will wish him a speedy recovery.

WHILE everyone sympathised most sincerely with M. Barbot, whose machine crashed on Sunday while taking off, it was impossible that the happening should not be made the subject of a joke, as would, of course, a mishap to anyone else. Some wag suggested that in the future the Dewoitine should be known as the "Do-it-in."

RAYNHAM's controls have come in for a good deal of criticism, owing to the fact that he operates his *ailerons* by the simple procedure of pulling on the *aileron* cable with his left hand, while operating the elevator with his right and the rudder with his feet. It is suggested that if this tendency towards simplicity is allowed to grow we shall see pilots flying barefoot, with the rudder cables wound around their big toes, the elevator strings in their mouth and the *aileron* cables attached to their ears.

RAYNHAM has done well, hasn't he? Most people would say so. But still he has failed to do what he promised our representative on Sunday last. His scheme, and a perfectly good and unanswerable one it was, was to get off at sunrise and remain up until sunset. Other competitors would then be unable to beat him because "every day in every way is getting shorter and shorter."

ALTHOUGH the gliding competition has provided great sport and fine performances, it has sadly disappointed many. From the entries list one was justified in finding on, or at the foot of, Itford Hill a number of strenuous gentlemen pedalling away for dear life and lifting themselves into the air. Up till Tuesday night the only pedals we noticed were those on our "push-bikes," and they showed no inclination whatever to leave mother earth. But we still have hopes. It has been suggested that these direct-lift machines should be made to start from the foot of the hill and alight on the top. And quite right, too.

JUST as we are going to press we learn that Mr. Jeyes has crashed on his Aachen glider. Starting on Oct. 18, from Beddington Hill in a strong gusty wind he fought gamely for 1½ minutes, but, on attempting to land, a gust caught the machine and it crashed on a wing tip, turning over and pinning Mr. Jeyes underneath. Fortunately he escaped serious injury, but the machine is a complete "write-off."

## THE BRITISH GLIDING COMPETITION

### The Minimum Duration Exceeded on First Day of Meeting

LEWES, Saturday, October 14.

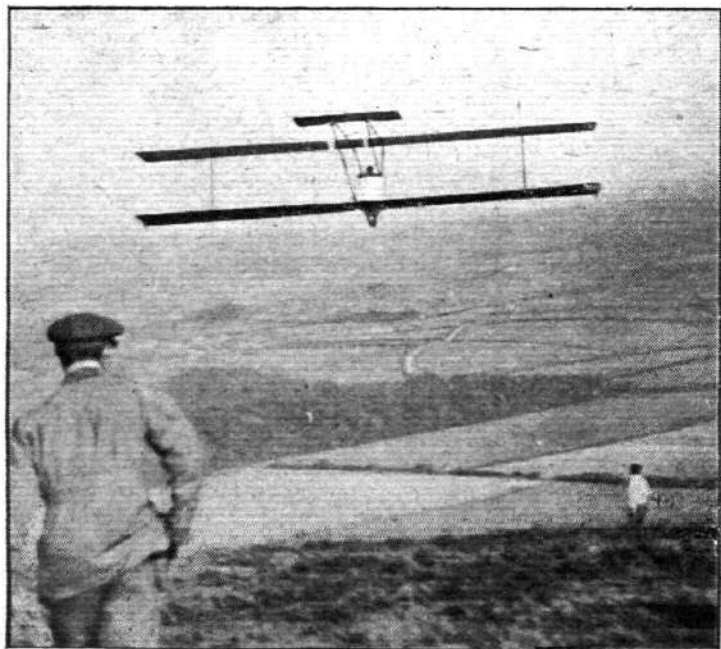
IN the tent hangars erected on the northern slope of Itford Hill competitors are busy putting finishing touches to their machines. The first of them to arrive on the scene of the gliding competition for the *Daily Mail* prize of £1,000 and several subsidiary prizes was Mr. Gordon England, who made one or two short "hops" yesterday to test the trim of his small monoplane. This machine is housed in the upper tent,

as is also Raynham's monoplane and Jeyes' Aachen (Klemperer) machine, the monoplane which won the gliding competition in Germany last year. In the next tent M. Barbot's Dewoitine monoplane is standing all ready for the fray. During the early morning hours the other tents remained empty, but several competitors were expected to arrive during the day, notably Merriam's and Sayers' monoplanes.

Gordon England had found in his preliminary flights that his rudder was on the small side, and he and his brother, George England, were busy during the day making a slightly larger rudder. About half-past three in the afternoon Mr. Jeyes had his Aachen lifted outside the hangar to try a short hop across the ridge which runs north from Itford Hill. A detachment of the R.A.F. (from Uxbridge) under the command of Flying Officer Gowler, have been "lent" by the Royal Air Force to assist in starting and generally handling the machines, and in Jeyes' attempt were hauling lustily on the ropes. When the word "Go" was given, the mechanics hanging on to the wing tip ropes did not let go in time, one of them getting tangled up in the long rubber cords used for starting. As the Aachen monoplane was not designed to carry passengers on its wing tips, it came down somewhat abruptly, and the landing shock broke one of the seat supports, and also caused an elevator pulley to come adrift. However, no great damage was done, and Mr. Jeyes and his assistants were soon at work patching up the broken parts.

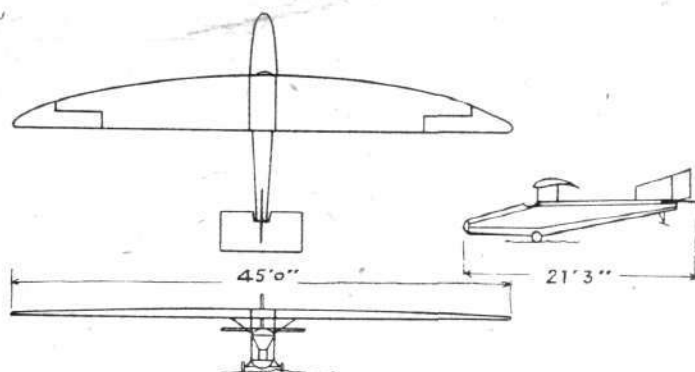
Shortly afterwards, Raynham, Camm, and half a dozen of willing helpers carried the Handasyde monoplane to the top of Itford Hill, where Raynham tried three starts along the straight, not attempting to go "over the top." His machine got off remarkably well, leaving the ground at a speed of certainly not more than 10 m.p.h., and floated along a few feet above the ground, coming down gently and stopping in a couple of yards. While he was gliding along, Raynham worked his elevator vigorously to test the control, and even at that low speed the machine appeared to answer extremely well. The rudder control, however, was not quite so good, and Raynham decided to follow England's example and fit a slightly larger rudder.

Towards evening the Sayers' glider arrived on a lorry placed

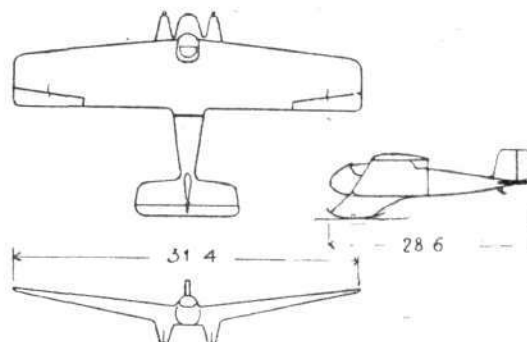


Fokker starts off on his 37 minutes' flight.

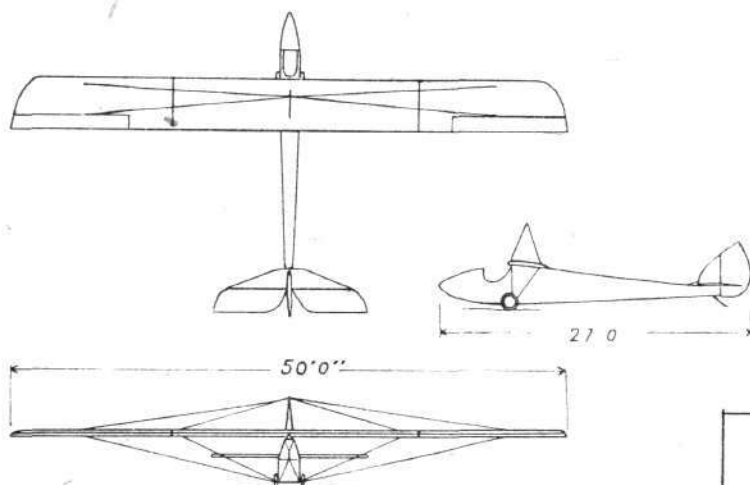




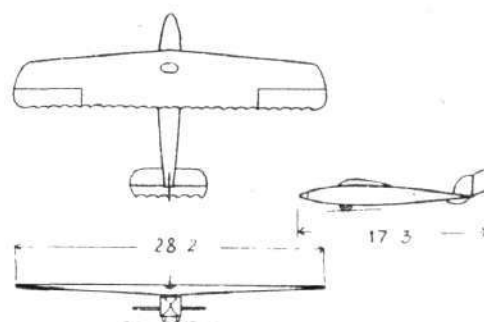
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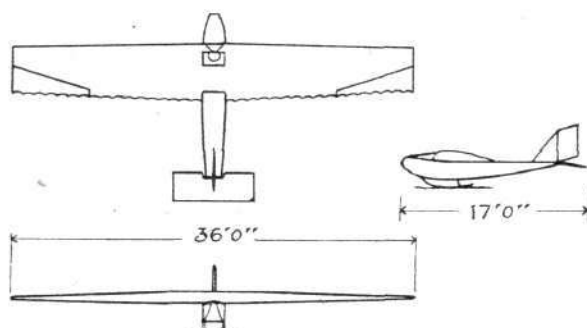
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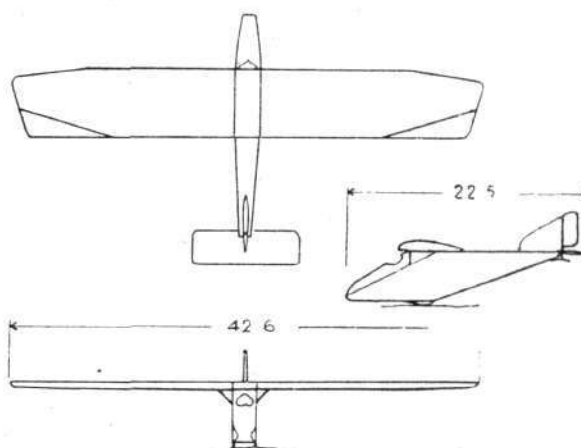
DE HAVILLAND



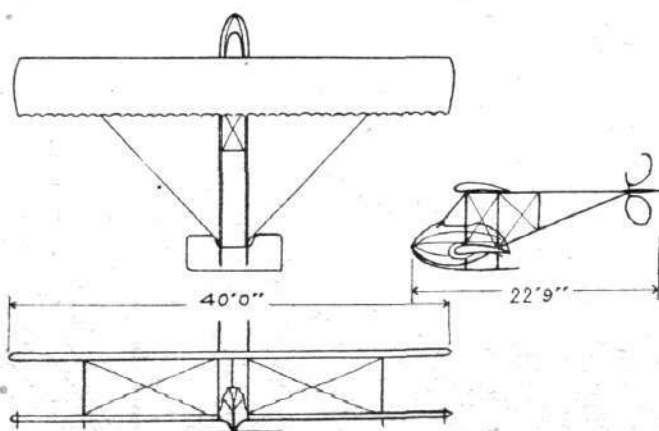
GORDON-ENGLAND



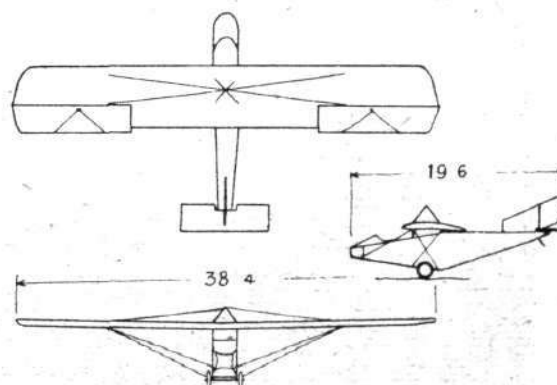
RAYNHAM



S C W.

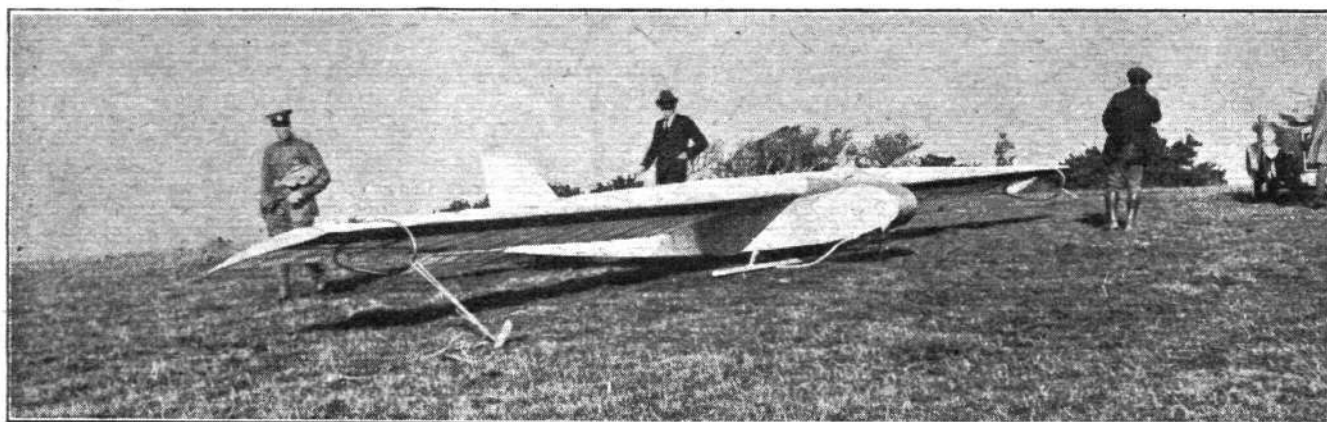


FOKKER 2-SEATER



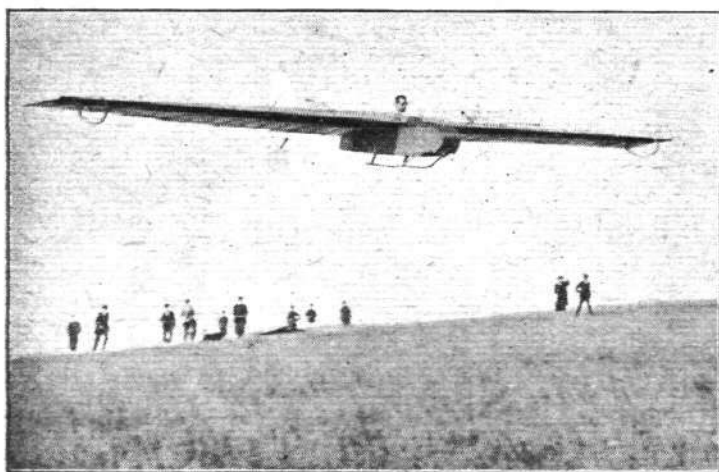
MERRIAM-NEWMAN

General arrangement drawings, to a uniform scale, of some of the competing gliders.

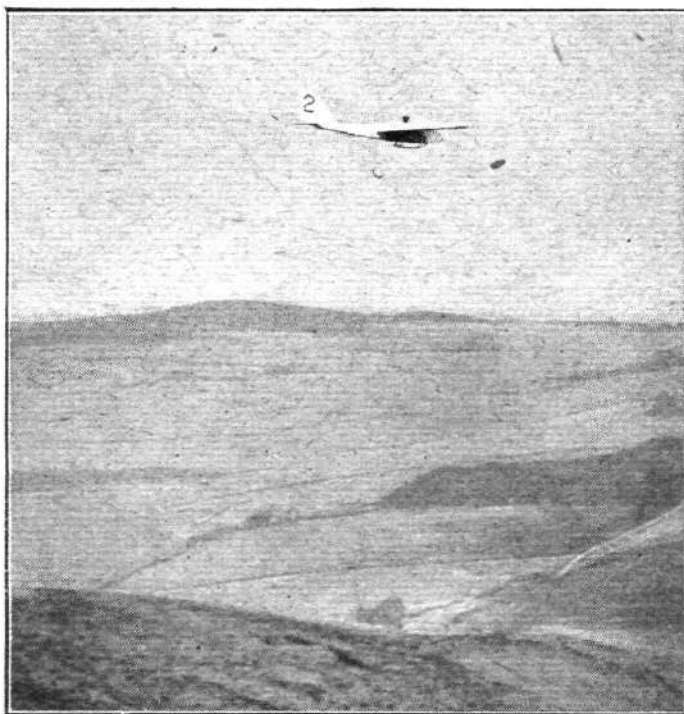


Raynham's Glider pegged down on the summit of Itford Hill.

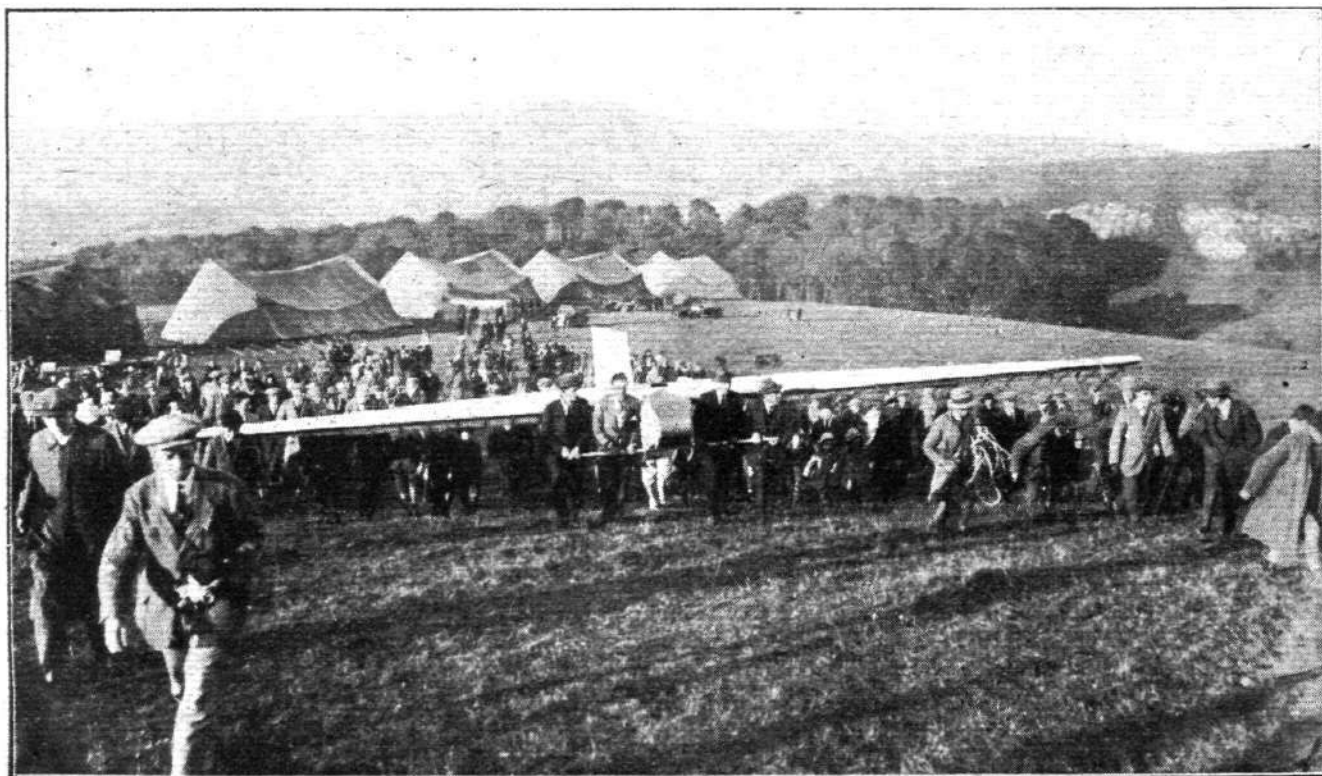
at his disposal by Mr. Fairey, and the work of unloading it was commenced without delay. A few minutes afterwards Merriam and Newman came puffing up the slope of the hill in a little 10 h.p. car on which their monoplane glider had been carried, without other assistance, all the way from Southampton. It was gathered that Merriam and Newman had had quite an interesting time, what with the wind trying



Raynham making a short flight, October 15, to test his machine.



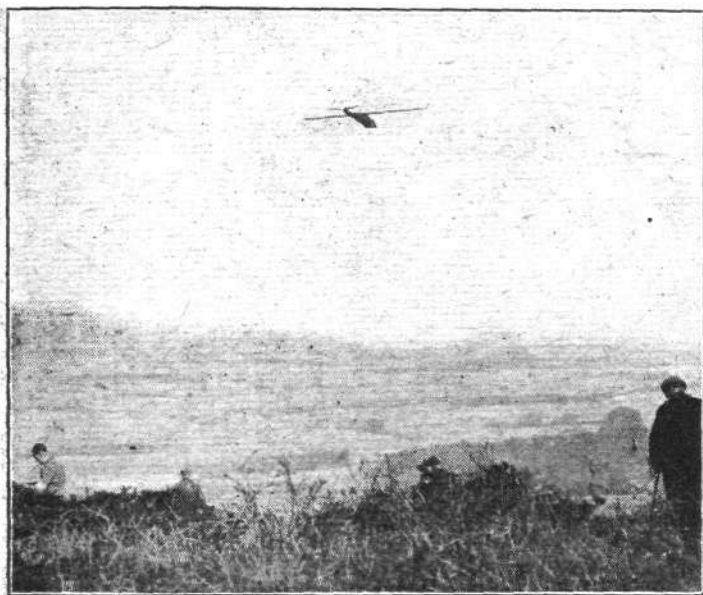
Raynham starting off on his 11½ minutes' flight.



Carrying Raynham's Glider up to the top of Itford Hill. In the background may be seen the five tent hangars used for housing the machines.



to blow car, glider, and all into the ditch. Considerable time had also been wasted at toll gates, the keeper having to consult numerous books, forms, etc., before he could find out how much to charge for a glider. Even then he did not succeed, but had to make a guess according to the good old rule of three: If an aeroplane is charged so much, how much should one charge for an aeroplane which is not an aeroplane but a glider. The de Havilland machines had also been



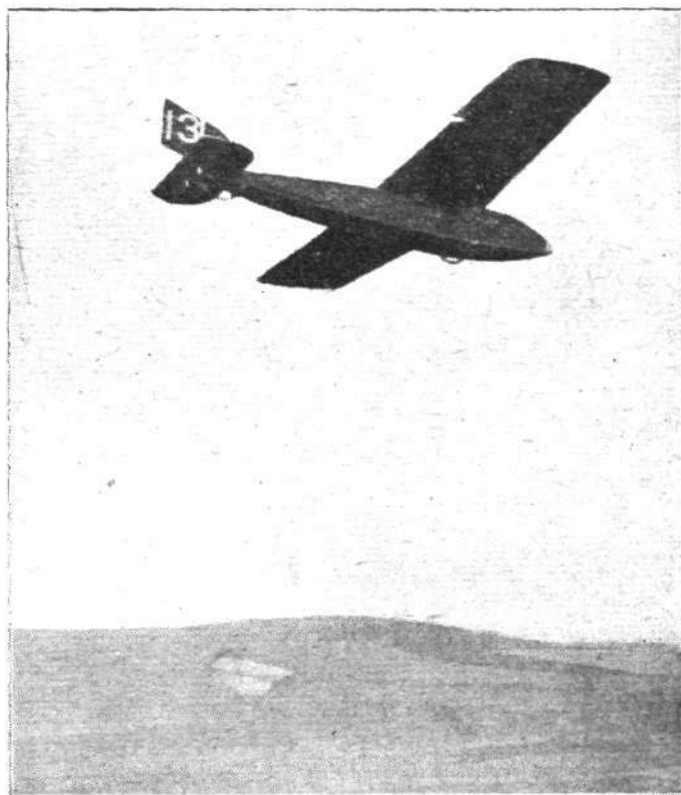
**Capt. Broad on the De Havilland Glider No. 4 making a flight from Beddington Hill.**

expected, but by the time the tents were shrouded in darkness they had not arrived.

*Sunday, October 15.*—Today several more competitors arrived. The two Fokker machines (biplanes) were brought over from Peacehaven, and the crew got busy erecting them, which operation appeared to be rapidly performed. One of the machines is the two-seater on which Fokker remained aloft for 13 minutes with a passenger. The other is a single-seater without nacelle.

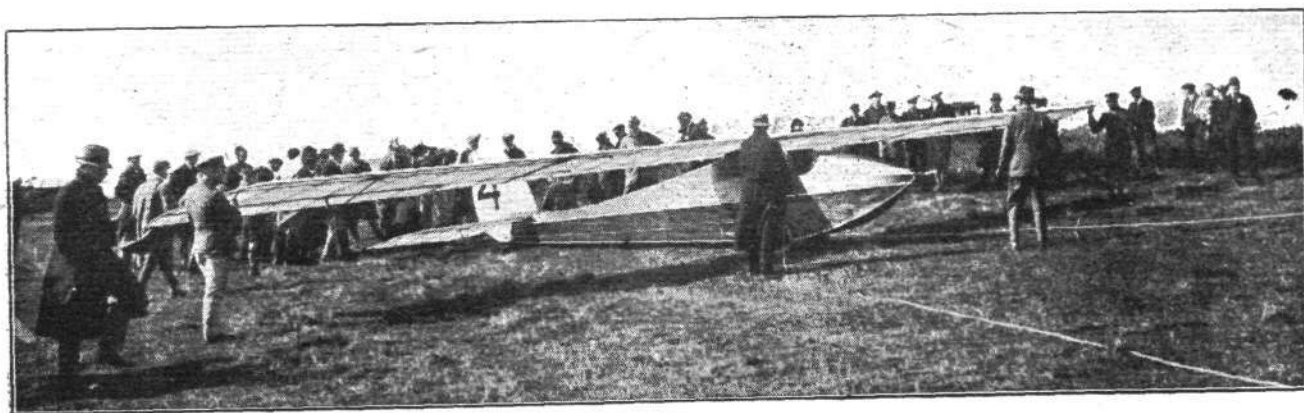
The two de Havilland gliders, Sibylla (No. 4) and Margon (No. 33) also arrived, and are being erected in the lower hangar. During the morning Raynham and Gordon England had their machines carried to the top of Itford Hill, but as

northern slope. The machine was placed in position, but partly owing to the crowd gathering around, and partly to the wind, the take-off was made in a cross-wind. The machine



**In spite of its "unlucky" number, Gordon England's monoplane gets up well, and is remarkable for its extremely steady flight.**

caught a gust under its starboard wing tip, which rose high into the air. The machine swerved to the left, touched with the left wing-tip, did a 'cartwheel,' and went over on its back, M. Barbot being underneath with his head in the gorse bushes. When the machine was righted, it was found that M. Barbot had escaped with a scratched face and wrist, but the machine was badly damaged. The nose had caved in, and one wing was found to be broken beyond hope of repair with the facilities at hand. How it happened that no spectator was hit and injured is a mystery. The machine swung right into a dense crowd, but by scattering in all directions,



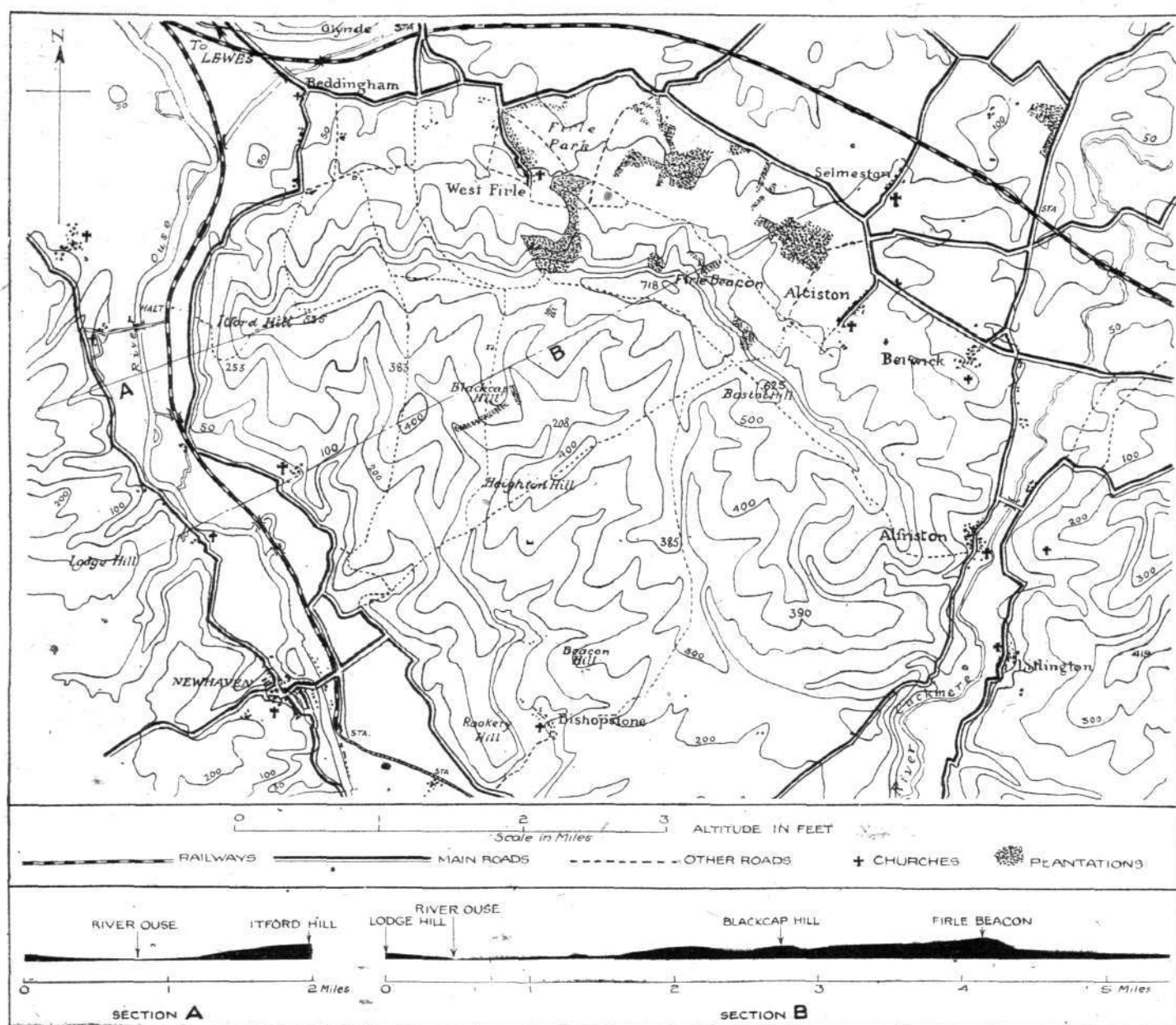
**The De Havilland Glider "Sibylla" ready for a flight.**

the wind appeared to be veering towards the south-east, they decided not to make an attempt from the top of the hill, but to carry their machines some distance down the southern slope, where there is a ridge running north-south, and across which, consequently, the wind was blowing. Both made short flights into the valley, but found that as soon as they were clear of the slope they got into the down-current from the next slope, and had to dive into the valley. Both machines, however, were found to handle well, and Raynham began to get used to his somewhat unusual aileron controls.

In the afternoon M. Barbot had his Dewoitine monoplane brought up to the top of Itford Hill, and as the wind was by then east-north-east, he intended to make start from the

some ducking under the wings, everyone escaped. Everybody will sympathise with M. Barbot in his misfortune. He has done a lot of gliding in France, and his machine is extremely interesting, with its bird-shape wing and peculiar flexible aileron control. M. Barbot was naturally keenly disappointed, but, like the good sportsman that he is, he blamed no one but himself for the accident. He knew his machine, and thought that even in the cross-wind it would answer the controls readily enough.

Later in the afternoon Gordon England had his machine taken to the top of Beddington Hill, and made a pretty flight of 1 min. 34 secs. duration, which is the longest made so far in this district. Tomorrow, the first day of the competition,



Contour Sketch-Map of Scene for Gliding Competition.

this figure will probably be exceeded by several competitors. In landing he slightly damaged the nose of his machine, but this is being repaired.

Monday, October 16.—The first flight this morning was made by Raynham, who got away from Beddingham Hill about 10.30. The wind was east-north-east, and Raynham flew due north at first, having gained considerable altitude, and then turned into the wind to land. He remained in the air for just under two minutes (1 min. 58 secs.), which was sufficient to win for him the £50 prize offered by Col. Alec Ogilvie should no other competitor increase the time.

By about midday the two de Havilland machines had been brought to the top of Beddingham Hill, and were got ready

to start. The manner of doing this is to tether the tail skid of the machine to a peg by means of a steel cable provided with a quick-release device. A number of men walk forward with long rubber cords or ropes, stretching them as taut as they will stand. On the word "Go" a man pulls the quick-release, the towing party at the same time running forward as fast as possible. The machines are thus catapulted into the air after a very short run. Capt. Broad, on No. 4 (Sibylla) was the first to get away. He rapidly gained altitude, but the machine appeared to be buffeted about a good deal, and the ailerons could be seen flicking as the swirls struck the machine. However, Broad stuck to his task, and managed to keep up fairly well until he got some distance away from



WILLING HELPERS: A detachment of the R.A.F. carrying Gordon England's and Raynham's gliders to the top of the hill.





On the summit of Firle Beacon Hill: From left to right:  
Col. Darby, Col. Ogilvie, Capt. Nicholl, and Mr. Fairey.

the hill. He then ran into calmer air, and began to drop. When at a very low altitude over the bottom of the valley the machine was struck by a gust which lifted the right wing. Swinging round to the left, Capt. Broad righted the machine again, but there was no time to get her round into the wind, and he had to make a landing in a cross-wind. From the top of the hill he appeared to make quite a good landing, but afterwards it was learned that he had damaged a wheel of the undercarriage. The duration of his flight was 2 mins. 18 secs., so that Raynham's time was beaten.

Capt. Herne got away next, some 20 minutes late, on No. 33 (Margon). Shooting into the air he rose rapidly, and his machine appeared a good deal steadier than Broad's. Herne held his height admirably for quite a long distance, but finally got out of the ascending current, and had to commence a glide into the valley. He seemed to be going well when, close to the ground, his left wing was seen to rise. He then disappeared from view, and it was impossible to tell what sort of landing he had made. Later it was learned that he had come into contact with a hedge, and when his machine was next seen on the hill its wings were torn considerably, and one of the top bracing wires broken. However, the damage appeared to be to the fabric covering only, and should be easily repaired. Herne's time was 2 mins. 38 secs. As this was his first flight on the machine, his performance was a highly creditable one.

In the meantime Jeyes, who had repaired the damage sustained on Saturday, had the Aachen brought up to the top of Beddingham Hill, and about 1 p.m. he was "shot" over the edge. The towing rope appeared to catch in something, and the machine rocked somewhat violently for a few seconds. Then, however, the ropes came adrift, and the machine got away well, Jeyes keeping his altitude for a considerable time. The fact of the ropes sticking had somewhat spoilt the flight, as he lost the few seconds when he should have been getting his height. However, in spite of this he did very well, remaining up for about three minutes. He made a perfect landing in a valley.

The Fokker biplane had by now been brought up to the top of the ridge, and as Fokker passed on his way towards Firle Beacon it was concluded that he would make an attempt from there. His method of transporting the glider is to place it across his Cadillac, and lash it fore and aft, letting it rest and pivot on its central skid. Raynham and Gordon England had by then also decided to bring their machines to Firle Beacon, where the wind appeared strong and seemed to offer possibilities of extended flights. Shortly after 2 p.m. Fokker took his seat in the machine, with Mr. Bewsher as passenger. Then followed a long wait, during which there was much photographing and whirring of cine-cameras. Fokker said he was waiting for the wind to get up. Ultimately he got off well about 2.30, and rose rapidly. Instead of flying out from the hill, as all previous pilots with the exception of Jeyes had done, Fokker hugged the edge of the range, letting his machine proceed crab-fashion towards Bostal Hill to the

south-east. The machine rose and fell as it got into and out of the ascending air currents. For quite a long period the biplane appeared to be standing still in the neighbourhood of Bostal. It was then seen to turn and commence its return journey, still at a greater altitude than the starting point. It was hoped that Fokker would be able to alight on the hill from which he had started, but he appeared to drift too far to the north away from the ridge, and to get out of the rising currents. Coming back towards Firle, losing height gradually, he made a right-hand turn into the valley and got ready to land. Just before touching, the machine was seen to approach a small gap in a hedge. The gap being too narrow to let the machine pass, Fokker "jumped" it, and alighted smoothly on the other side, having been in the air seven minutes, which was an extremely fine performance, considering that he carried a passenger.

Raynham and Gordon England had not failed to learn their lesson from Fokker's method, and as soon as his flight was concluded, they ran to the top of Firle Beacon to get their machines ready. Raynham got away just before three and rapidly gained altitude, "hugging the coast" as Fokker had done, and drifting crabwise towards Bostal. His altitude increased from time to time, while now and then the machine would drop as it got out of the air currents. As in the case of Fokker, Raynham seemed to remain for a long time near Bostal, but finally he was seen to let his machine drift to the right, close to the hill, make a left-hand turn, and commence to return. He was still well above his starting-point, and we began to hope that he might gain Firle without losing height, and thus be able to make a second trip. This was not to be, however, and the machine seemed to get out of the rising air and began to drop. When Raynham saw that he could not regain his starting-point, he glided down wind, passing Firle Beacon at a great pace, some 200 ft. below the top, and finally he disappeared from view. He had by then been up 10 minutes, and it was stated later that his actual time in the air was 11 mins. 23 secs., an extremely fine performance. Raynham told us later that he had a great deal of fun in landing. Apparently, as he turned north and was drifting sideways across the fields, he felt the up-currents from the ridges and hedges, and in this manner he hopped sideways over several hedges, finally turning into the wind and landing smoothly. Everyone was delighted with his performance, and he was considered a certain winner of the Ogilvie Prize.

When Raynham had landed, Gordon England made a start, about 3.20 p.m., getting into the air very well indeed, and gaining height as Fokker and Raynham had done. The steadiness of England's machine was remarkable, by far the steadiest flight of the day. "Crabbing" towards Bostal, England appeared to rise and drop more than the others had done, but always on a very even keel. He had gone a long way towards Bostal when it was noticed that, in spite of his keeping even closer to the ridge than had Fokker and Raynham, he lost altitude rapidly. The explanation soon became obvious. In the excitement we had not noticed that the wind had dropped; but England's machine, not being of an excitable nature, did notice it, and acted accordingly. Soon he was seen to turn north, and make a landing some distance east of Firle Beacon. His time in the air was 4 mins. 32 secs. This was the first flight of the day to represent a decrease in duration, but it was obviously caused by the failing wind.

In the meantime Merriam had had his machine brought up to the top of Itford Hill, from which he had intended to make a flight. All the time-keepers and officials were, however, at the eastern end of the ridge, at Firle Beacon, and Merriam commenced to wheel his monoplane firewards. The dropping wind, however, caused him to alter his decision, especially as it was getting rather late.

Curiously enough, the wind increased in force again towards sunset, and Fokker, who had brought his biplane to the top of Firle, decided to have another attempt. Although the sun was getting very close to the edge of the western hills, he took off about 4.45, this time alone in the machine. Without going so far afield as on the previous flight, he cruised around, circled and turned, constantly rising and falling, but maintaining a fair average level above his starting-point. The sun disappeared behind the hills, although it would probably still be visible over flat country, and still Fokker kept on



Shouting down to the few remaining spectators, he enquired how long he had been up, and was told to "stick it" another few minutes, as he would then have exceeded the minimum of 30 minutes. When he finally did land, he had been up for 37 mins. 6 secs. The performance was an extremely fine one, and as Fokker landed within the prescribed radius of 800 yards from his starting-point, he has a claim on the *Daily Mail* prize of £1,000. However, there is nearly a week in which others may improve upon the duration, and several machines have not turned up yet. Given good weather, there does not appear to be any reason why the German record should not be beaten in Sussex.

**Tuesday, October 17.**—The early part of the morning gave promise of another fine day, and there was a strong north-easterly wind blowing. Up to about 10 a.m. there was nothing doing on Itford Hill, and by this time the force of the wind had increased considerably. Then Merriam's machine was brought out and carried up the hill. On reaching the top we started on the long, long trail for Firl's Beacon, where it was proposed to make a flight. When about halfway there we observed a machine shoot up over the beacon and sail gracefully sideways before turning back again. This proved to be Raynham on No. 2, and we watched him sailing backwards and forwards during the rest of our weary way. On arriving at the Beacon, we learned that Raynham had been up for 1 hr. 35 mins. already; and he was certainly still going strong. He would soar sideways alongside the hill towards the right, gaining height in the meantime. Then he would turn out away from the hill and return, with the wind just slightly assisting him, then turn out again and repeat the process *ad lib.*, with variations, keeping fairly close to the hill all the time. At about 12.20 Raynham sailed a little further than usual to the right, and just lost the up-current and dropped considerably. He made a splendid effort to get up again, and nearly succeeded at the western end of the Beacon, but eventually had to glide down below, making a neat landing on a small hill just underneath. His time was given as 1 hr. 53 mins. Prior to this flight Raynham had made one or two short trial flights.

Preparations were then made for getting Merriam's machine ready, which was eventually brought up to the jumping-off point. At 12.45 the starting ropes (elastic) were pulled forward by several willing hands, the machine being held back in the meantime, and then Merriam gave the signal to "Let her go." The machine almost immediately rose upwards at what seemed an alarming angle. Then the left wing rose, and the machine was literally blown over on its back, and then "cart-wheeled" on to its nose, crashing into the ground at the same time. At first we thought matters were most serious—that Merriam and some of the onlookers had received serious injury. Strange to say, however, Merriam got out of the badly smashed machine with nothing more than a bruised leg, whilst, somehow or other, the crowd got clear of the falling machine with remarkable rapidity, and no one was hurt. It was, of course, most fortunate that things turned out as they did; but still we, and all present, were extremely sorry that Merriam should be put out of the running—for the present, at any rate—so early. However, it might easily have been very much worse, so here's better luck next time!

Shortly afterwards, Raynham's machine was "brought to the surface" again, and a little later it was carried back to Itford, as it was decided not to make further flights this day, as Raynham wished to make certain alterations to the controls. In the meantime another machine—or so we thought—was observed high up over Beddingham Hill, almost stationary, and sundry guesses were made as to what 'bus it was. We learnt later it was a kite! Imposter!

After a wait of an hour or so (during which a much-needed lunch, wisely brought with us), we observed a machine take off from Beddingham Hill, but we were too far off to distin-

guish the breed. It appeared to glide straight down, and soon disappeared from view. There was nothing for it but to tramp back again (as many of the spectators had already done), and on arriving on the above-mentioned hill, we found that the machine observed had been Gordon England's monoplane. He had made a glide, we were told, of about two minutes. After this, his machine was carried back to Itford, parts of Merriam's 'bus following. By this time it was past four o'clock, and as it was doubtful if anything more would happen, we went down to the hangars to see if there were any new arrivals, but only one—G. W. Cain's monoplane—arrived just as it was getting dark. Adjustments were still being made to various other entries, some of which—well, 'nuff said!

In the following notes we give a brief description of the gliders which had arrived at Itford Hill by Monday evening. The accompanying scale diagrams on page 607, drawn to a uniform scale, should help to form an idea of the lines and relative size of the various machines.

### The Machines

**Gordon England's Machine** is a very small cantilever monoplane, with the type of wing section recommended by Mr. Weiss. The span is 28 ft., and the wing area 130 sq. ft. The weight of the machine empty is but 100 lbs., and assuming that the pilot weighs 160 lbs., the total weight is 260 lbs., and the wing loading exactly 2 lbs./sq. ft.

**Raynham's Monoplane** is also of the cantilever type, the wing section used being the Göttingen No. 441. The aileron controls are unusual, inasmuch as the cable is not connected up to the control stick, but is operated direct by the pilot's left hand. The machine has a span of 36 ft. and a wing area of 155 sq. ft. The weight empty is 160 lbs., and fully loaded 320 lbs., giving a wing loading of 206 lbs./sq. ft. The machine gets off at a remarkably low speed, and flies with the tail well up.

**The Aachen Monoplane** was illustrated in *FLIGHT* last week, and it suffices to state that it is similar to the type on which Herr Klemperer did so well in the German competitions last year.

**The S.C.W. (Sayers) Monoplane** is described in detail on another page of this issue, to which we would refer readers.

**The Merriam-Newman Monoplane** has a thin wing section (R.A.F. 15), and consequently bracing has been necessary. The machine has an ordinary girder type fuselage with wire bracing, and altogether the construction follows conventional lines.

**The De Havilland Gliders** have already been fully described and illustrated (see *FLIGHT* of October 5, 1922). The only alteration is to the undercarriage (as foreshadowed in our article), which is now merely an axle mounted on the lower longerons and carrying the wheels. The angle of incidence has been increased to allow of landing slowly.

**The Fokker Machines.**—At the moment of writing, only two of the three Fokker machines entered have put in an appearance. These are both biplanes, but one is a two-seater with an enclosed nacelle, while the other is an open single-seater.

**The Airdisco Glider** has a crescent-shaped monoplane wing of very original section. Speaking from memory, we should say the section is very similar to the bird's wing section tested several years ago at the Eiffel laboratory. The wings are extremely light, and appeared to sag with their own weight. We should say a few bracing wires would be advisable.

At the moment of writing these notes no other machines had arrived at Itford Hill, but next week we hope to deal with some of the newcomers. In the meantime, a detailed description of the S.C.W. monoplane, designed by Capt. Sayers and built by the Central Aircraft Co., of Kilburn, may be of interest.

## THE SAYERS, COURTNEY AND WRIGHT MONOPLANE

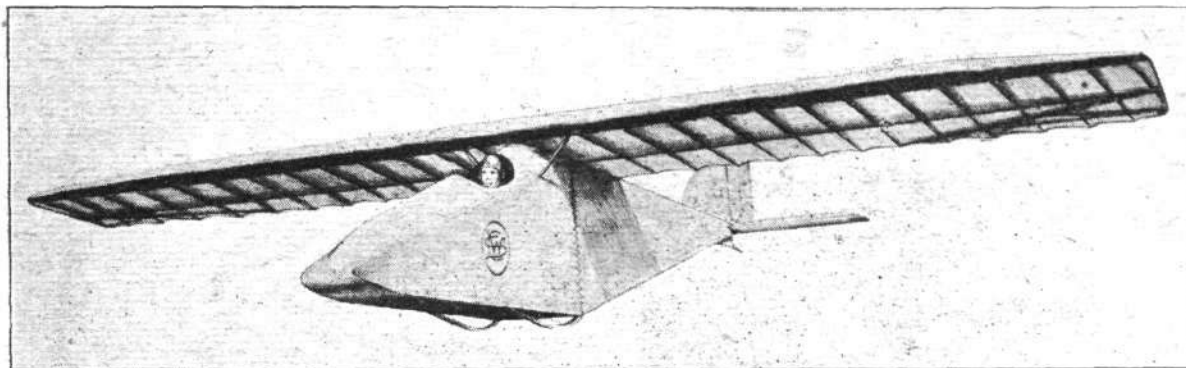
Constructed by the Central Aircraft Company

ALTHOUGH resembling in outward appearance the famous Hannover "Vampyr," the monoplane designed by Capt. W. H. Sayers, in collaboration with Mr. F. Courtney and Maj. Wright, and built by the Central Aircraft Company, of Kilburn, differs from the German machine in many respects, notably in the matter of detail construction. Aerodynamically also the "S.C.W." shows characteristics which are at variance with those of the "Vampyr." For one thing, the wing section employed is quite different from the Göttingen No. 441, which the Hannover machine is said to possess. In the "S.C.W." monoplane glider, the section is one of the

airscrew sections, T. 62, we believe; that is to say, in so far as one can speak of any particular section in a wing which tapers in thickness and chord from root to tip. What Capt. Sayers has actually done is, we believe, to step up the ordinates of the original section over the central portion of the wing, gradually thinning it down until the actual section is attained some distance out along the span, and thence the ordinates are progressively reduced towards the tip.

Another respect in which the "S.C.W." monoplane differs from the "Vampyr" is in the aspect ratio, the chord being considerably greater in the former machine, and consequently





Sketch of the S.C.W. (Sayers) Glider in flight.

the aspect ratio smaller. How this change will affect the characteristics of the machine remains to be seen.

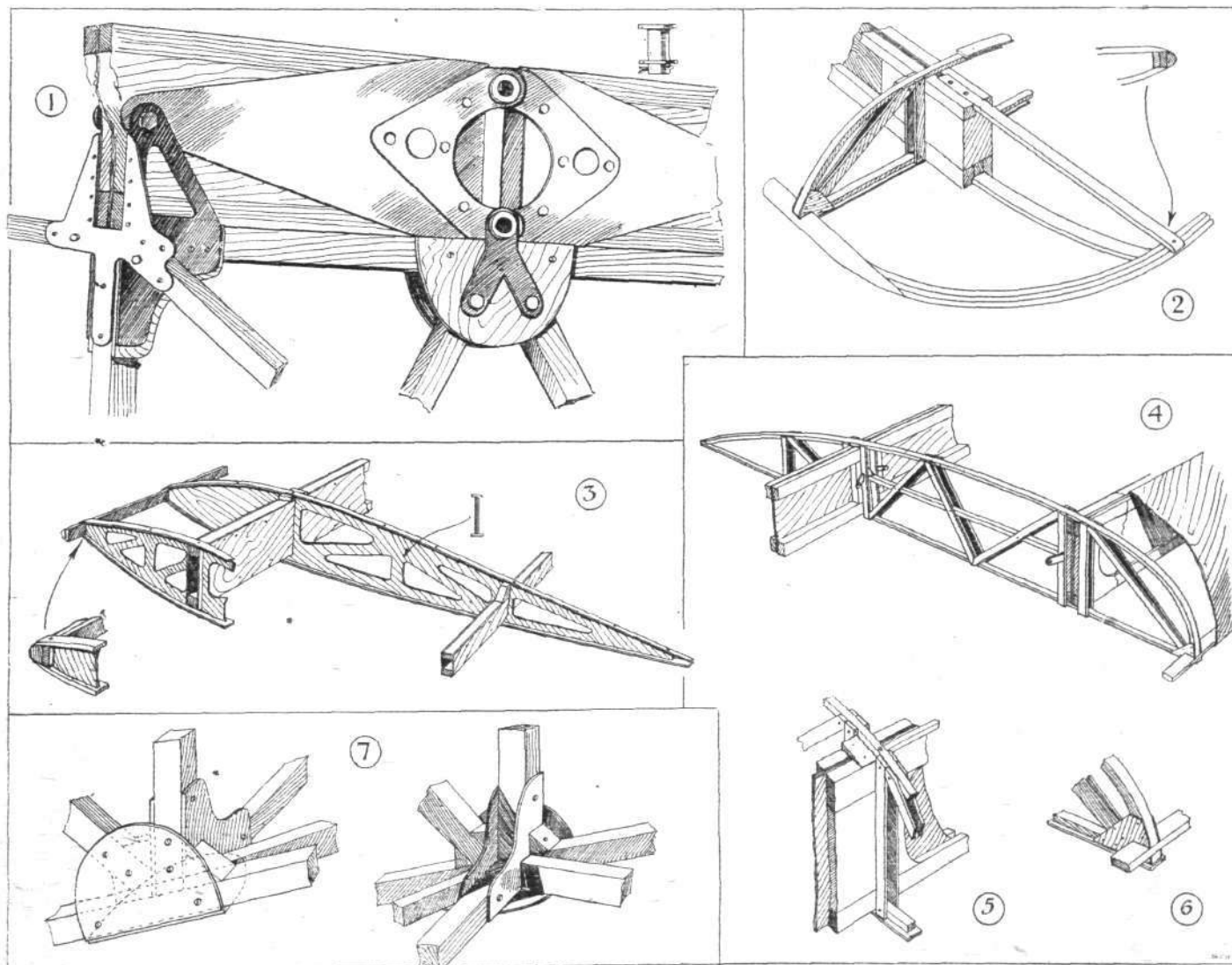
As already mentioned, the construction of the "S.C.W." monoplane is quite different from that of the "Vampyr." The fuselage, which in external shape greatly resembles the Hannover monoplane, is built up entirely without wire bracing, and, except for the wing spar fittings, without metal fittings of any kind. The four spruce longerons are  $\frac{3}{4}$  in. square in the forward portion, tapering to about  $\frac{1}{2}$ -in. square at the stern. The struts are of similar dimensions, and of the same material, and rigidity is obtained by diagonal spruce struts secured to the longerons and vertical struts by three-ply wood "fish-plates," screwed to longerons and struts.

Where local considerations demand it, the transverse panels in the fuselage are built up in the form of a "diamond" enclosed in a rectangle and having its corners attached to the centre of the sides of the rectangle. The covering is fabric,

except where local stresses are likely to occur, such as near the tail and over the bottom of the front portion, where three-ply covering is used.

The wing is built up in two halves, joined on the centre line by forked fittings (steel) of the form shown in one of the sketches. The spars are of built-up construction, with  $\frac{3}{8}$ -in. three-ply webs and double flanges of spruce, screwed, through the three-ply, to one another. Over the inner portion the spars are reinforced by packing pieces of spruce, which bring the I section up to a rectangular one.

The ribs are of very light and neat construction, which is well illustrated in one of our sketches. The light flanges are of  $\frac{1}{4}$ -in. square spruce, and the webs are formed by a Warren truss consisting of double strips. Finally, over the outside of flanges and the ends of the web strips are tacked narrow capping strips of thin three-ply wood. The leading edge of the wing is covered with a sheet of thin three-ply,

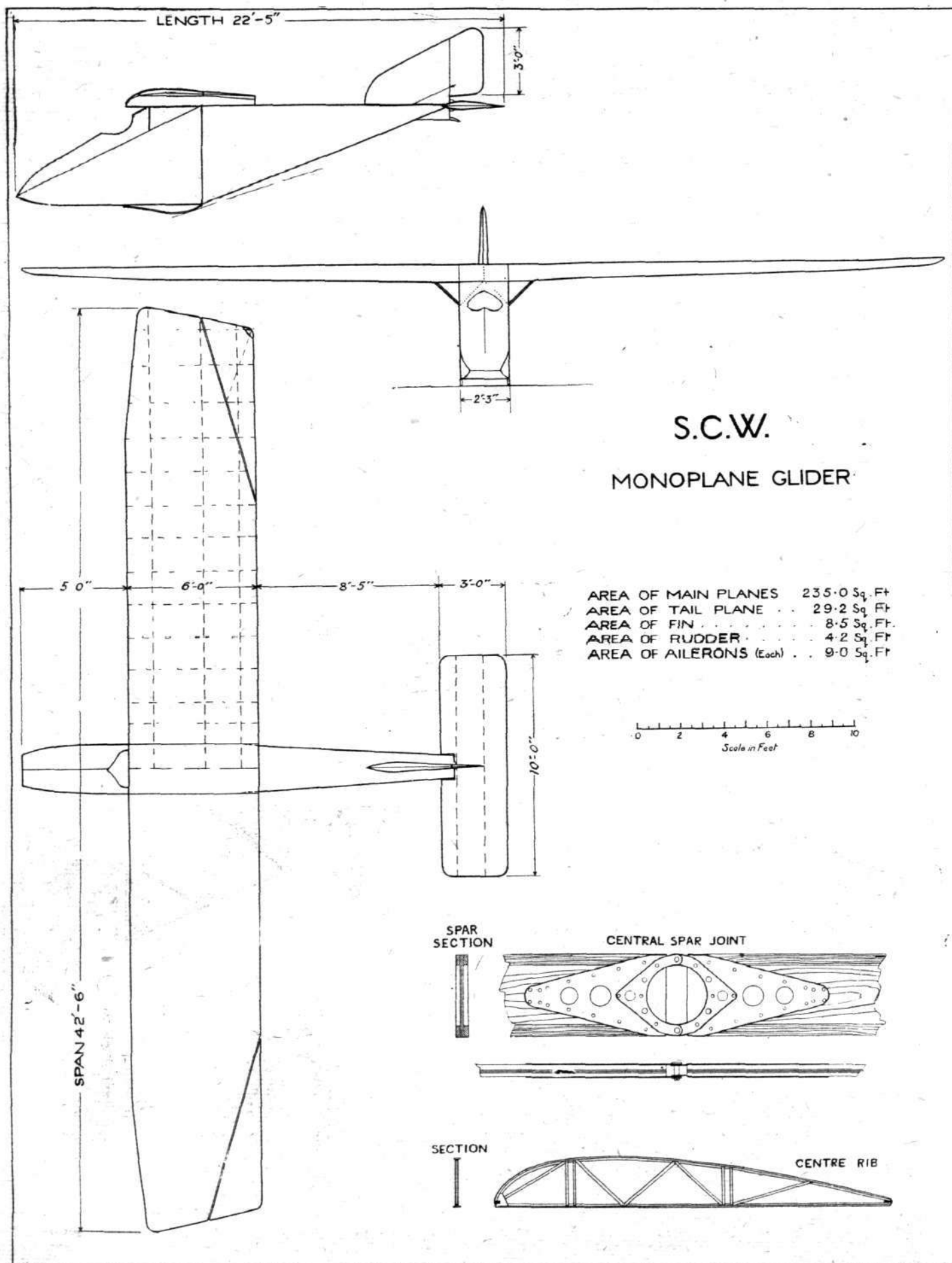


THE "S.C.W." MONOPLANE GLIDER. Some constructional details. 1. Metal fittings securing spar to top longeron, and also spar root fitting. 2. Construction of wing tip. 3. Details of elevator. 4. Sketch showing spar and rib construction. 5 and 6. Details of rib. 7. A typical fuselage joint, showing three-ply "fish-plates."

extending from the leading edge strip up to the top of the front spar. The three-ply capping strips, to which reference has been made, stop at the edge of the nose covering sheet, thus forming a smooth surface. It should be pointed out that the rear edge of the three-ply sheet is screwed and tacked

to a strip secured to the top face of the spar, so that it is supported right along and not at the ribs only.

The attachment of the wings to the fuselage is by very substantial fittings, forked over the upper longerons and having lateral grooves in them for the spars. By undoing a



THE "S.C.W." (SAYERS) MONOPLANE GLIDER: Plan, side and front elevations, to scale.



few bolts, the wing can be dismantled, either in one piece, or, by undoing the tubular bolts of the spar root fittings, in two halves. These bolts are in the form of short tubes of fairly large diameter, so as to give large bearing area, and are simply secured by a washer and split-pin.

The undercarriage is in the form of two skids, hinged at their front ends to the lower longerons, and so housed in the rear fitting as to be free to slide in a fore and aft direction as the load on the skids causes these to deflect.

## LONDON TERMINAL AERODROME

Monday evening, October 16.

THE fine weather of the last week has given a fillip to the traffic on the airways, and the number of passengers travelling by air has been almost up to summer figures. Today, for example, there were 22 passengers on Handley Page machines from Paris. On the London-Cologne route the Instone Air Line continue to carry good loads of passengers, and, owing to the prevailing easterly wind, some rapid flights have been made from Cologne to London. On one occasion Mr. Holmes, piloting one of the Napier 34's, made the journey from Cologne to London in a flying time of only 2 hrs. 55 mins. This, by the way, he has just eclipsed today, doing the Cologne-London flight in 2 hrs. 39 mins.

Rapid journeys from the Continent have been the rule during the week, while to the Continent the times have been unusually long. One of the Grands Express Goliaths created a new record for such machines by flying from Paris to London in 1 hr. 55 mins. on Saturday, while a Daimler 34 made the same journey in 1 hr. 44 mins.

Startling accounts have appeared in the daily press of a mishap to one of the Messageries Aériennes' Goliaths near Poix early last week. According to a passenger, the machine crashed so badly that it "bounced" into the air again. Incidentally, this passenger stated that he had climbed out on to the top of the Goliath when this occurred—no mean feat, by the way, considering that it is impossible to get out of the Goliath in flight without first of all throwing the pilot overboard! What actually happened was that the machine was forced to descend owing to bad weather, and, after making a rather bumpy landing on bad ground, the wheels sank into the soft earth of a filled-in shell hole, causing the Goliath to tip up on to its nose—an experience alarming enough to start the imagination of an excited passenger.

### Increase of Traffic on Rotterdam Route

THE Rotterdam service run by the Daimler Airway and the K.L.M. is beginning to attract good loads. This is probably due to the cut in both passenger and goods rates. At any rate, there has been a sudden rush of goods, which is taking the K.L.M. all their time to deal with, while there is a steady increase in passengers—several full loads leaving during the week. At present the passenger machine leaves at 9 a.m., and the goods machine at 11.30 a.m., which is, of course, the wrong way round. I understand that this is to be altered when the Daimler Airway open their service to Manchester on Monday next. Then the machine from Manchester will go right through to Amsterdam, leaving Croydon somewhere between 11 and 11.30 a.m., while the

Lateral control is roughly by ailerons, of triangular shape, and the controls are of the usual type, with the exception that elbow cranks and pull-and-push rods take the place of cables running over pulleys.

The general design appears to be very good, and the workmanship, as was to be expected from the Central Aircraft Company, is excellent. It seems probable that, if the machine performs well in the competition, the C.A.C. may standardise it and place it on the market at a reasonable figure.

K.L.M. machine with goods and early passengers will leave about 9 a.m. The Daimler service is also to be extended from Rotterdam to Amsterdam on Monday next.

Handley Page Transport have been carrying full loads again practically every trip this week, and I understand that the forward bookings are exceptionally good for this period of the year. This week the Daimler Airway are continuing to carry the early-morning newspaper traffic to Paris, by arrangement with Handley Page, but after this week their machines will be required on the Manchester-London-Amsterdam route, and, as the price paid for this form of traffic is too small to allow of the running of a twin-engined "Handley" specially to take it to Paris, one of the French companies will probably take over this newspaper load.

M. Jacques de Lesseps, who was the second man to fly across the Channel, made his second aerial journey from France to England during the week. This time he travelled as a passenger in one of the C.M.A. "Goliaths." It is interesting to note that there was a lapse of 13 years between his pioneer flight and his air journey of last week, and the difference in the type of the machines and in the "every-dayness" of the flight in 1922 forms a striking comment on the rapid progress made by aviation during that period.

### A Night-Lighting Comedy

AN amusing incident occurred one night during the week, when a French "Spad" which had been equipped for sky-writing, was *en route* for Croydon from Paris to be delivered to Maj. Savage at Hendon. The machine was known to have passed Lympne, but had not reached Croydon by dusk, and the aerodrome night-flying lights were switched on. These were kept going for a considerable time, until it was discovered that the pilot of the machine was walking round the aerodrome, an interested spectator of the lighting "exhibition." It appeared that he had landed his machine at Kenley, and come on to Croydon by car, and, having no idea that the lights were for his benefit, was examining the cone-light with obvious interest.

Further night-flying tests were carried out on Friday night by a Bristol Fighter, which flew over the aerodrome after dark and made several landings.

An unusual enquiry, which is significant of the place in transport that aviation is winning, was received at the aerodrome during the week. A big firm of meat merchants wished to know if it would be possible to send several tons of meat a day to France, and asked for a quotation for regular daily consignments of from 3 to 5 tons.

### "R. 38" Memorial

THE design for a memorial to be erected at Hull to the victims of "R. 38" airship disaster has been approved by the Air Ministry, by whom the cost is to be defrayed.

### Fine American Duration Flight

LIEUTENANTS MACREADY and Kelly started off from San Diego on October 5 in a large monoplane to attempt a non-stop flight from California to New York. Owing to fog and unsuitable weather conditions generally this project was abandoned, and the airmen decided to make an attempt to beat the duration record instead. This they have apparently succeeded in doing, although the record of 35 hrs. 18 mins. has not yet been homologated. Later, we hope to be able to record some details.

### Bossoutrot Remains Up for 34 Hrs. 17 Mins.

ON October 14 Bossoutrot, the famous Farman pilot, accompanied by Drouhin in a Farman "Goliath," left le Bourget aerodrome in an attempt to establish a new world's record for duration. After remaining in the air for 34 hrs. 17 mins. 7 secs., they had to alight owing to running short of fuel. The flight is claimed by France as a world's record on the grounds that the American flight has not been homologated. Neither, for that matter, has the French. It is of interest to note that the Renault engines with which the "Goliath" was equipped were driving Leitner-Watts all-

metal airscrews, so that these well-known propellers may now be assumed to have amply proved their worth under the most severe conditions.

### America Sets Up a New World's Speed Record

ON October 16 Lieut. Maughan, winner of the Pulitzer Trophy, set up a new world's speed record—flying over a measured kilometre course. On his Curtiss machine he is stated to have flown at an average speed of 248.5 m.p.h.

### Soviet Air-Service Conscripts

A NEW Soviet decree has been published that all able-bodied men shall on attaining 20 years of age serve in the army as follows:—Infantry and Artillery, 1½ years; Cavalry, 2½ years; or Air Service, 4½ years.

### Royal Aero Club Celebrates

THE banquet at the Savoy Hotel on October 26, organised by the Royal Aero Club to celebrate the British victory of the Supermarine-Napier flying boat in the Jacques Schneider seaplane race and the holding of the Circuit of Britain air race for the King's Cup promises to be an outstanding success, and the seating accommodation available looks like being strained to the utmost. Lieut.-Col. J. T. C. Moore-Brabazon, the Chairman of the Club, will preside. Applications for tickets should be forwarded promptly to the Secretary of the Club at Clifford Street, to ensure being included in the dinner plan.

# LE BOZEC AERO ACCESSORIES

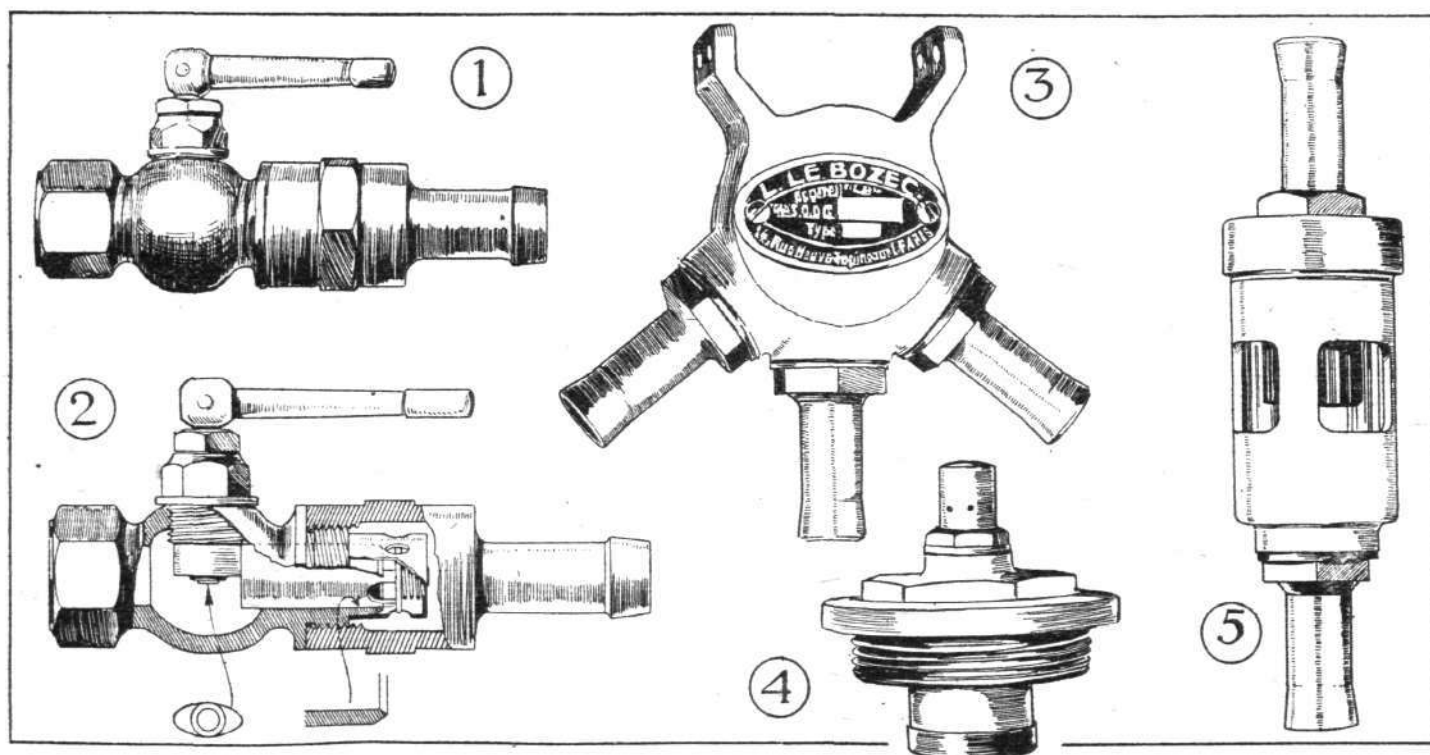
ALTHOUGH, perhaps, known only to those more intimately connected with aircraft construction in this country, the name "Le Bozec" has a considerable reputation in France, for during the War practically all the aircraft employed by the French Government—and some of the British machines as well—were equipped with sundry fittings bearing this name. These fittings, in the nature of petrol cocks, petrol flow indicators, etc., during that time gave excellent results, with the result that they are now fitted as standard by many of the present-day French aircraft manufacturers, and arrangements have just been made for placing Le Bozec accessories on the market in this country, and they can now be obtained from W. Ryan Hart (McCreath Taylor and Co., 34, Victoria Street, S.W. 1).

Before describing some of these accessories it should be mentioned that the primary Le Bozec feature is a patent valve device, which is embodied in most of the various Le Bozec fittings. This valve consists of a small disc, suitably housed in a cage, with or without a spring, as the case may be, which rests on an annular seating. The seating of the disc is bevelled, in order to form a sharp circular edge determined by the intersection of two inverted cones having the same longitudinal axis. This annular edge having a

any particular cause, the pressure in the corresponding pipe will decrease. The pressure existing in the centralising chamber, due to the head of liquid in the other tanks, will force the valve of the first tank shut, thereby isolating this tank. In the event of this tank still containing a certain amount of petrol, the latter will come into circulation as soon as the level of petrol in the other tanks drops sufficiently as to allow equality of head.

It is claimed for the "L.B." Centraliser that it not only greatly simplifies the whole petrol system, but eliminates the necessity for safety cocks, or complicated multi-way cocks which have to be manipulated when it is necessary to isolate one or more of the petrol tanks in the event of a leakage, etc. The pilot is thus relieved of one of the many items requiring his attention and necessary action. As previously stated, "L.B." centralisers are supplied in a variety of types to meet almost every scheme of petrol system, and we show in the accompanying illustrations one collecting from two tanks. The two outer connections, each containing a non-return valve, are from the tanks, the central one being the delivery to pump.

Another Le Bozec fitting, also illustrated, is a petrol flow indicator, whereby the pilot is warned of any defect in the



SOME "LE BOZEC" AERO ACCESSORIES : 1. The "L.B." Petrol Cock. 2. The same in section, showing the disc valve. 3. The "L.B." Petrol Centraliser. 4. The "L.B." Automatic Anti-leak vent for gravity tanks. 5. The "L.B." Petrol-flow Indicator.

surface theoretically *nil* and practically extremely small, the pressure per unit of surface on the seating is very great for a very slight pressure on the disc, thus giving complete tightness. For the same reason there can be no sticking of the disc on its seating. The disc is very thin and light, and is extremely sensitive, responding to very small pressure changes.

The principal application of this device is as a non-return valve, in which capacity it is employed in an extensive range of Le Bozec fittings designed to meet various requirements—according to different petrol or engine systems. One such application is in the "L.B." Centraliser, which, as its name implies, is an arrangement to centralise the supply of petrol off two or more tanks, or compartments of tanks, delivered to the engine or engines, and which will, also automatically, shut off any tank or compartment that may become damaged, but without affecting the common petrol feed. As there is considerable variation in the petrol and engine systems employed on different types of aircraft, there are various types of "L.B." Centralisers to suit any particular scheme. The general principle is the same, however, in each case, and may be described as follows: Each tank or compartment is in communication with the centralising chamber through an independent non-return valve—of the type in question—which is mounted in the chamber itself. Should the level of the petrol in one of the tanks drop, through

flow of petrol. In this device, which is also fitted with one of the disc non-return valves, a small red float contained within the body of the fitting, and directly in the path of the flow of petrol, comes into full view of a glass window immediately any defect or stoppage in the flow of petrol occurs. A similar model to the one illustrated is also made in which an electric lamp is fitted in the body, just behind the glass, whereby the action of the float is rendered visible at night.

"L.B." petrol cocks—which are made in a variety of types to suit different requirements, and have given very satisfactory results on the various French machines on which they are fitted—employ the Le Bozec disc valve as a means of controlling the flow of petrol to great advantage, inasmuch as the whole fitting is not only greatly simplified, but the risk of leakage has been reduced to a minimum, and it is practically impossible for it to get out of order. The principal element controlling the flow of petrol in this case is not, it will be seen, subjected to friction—resulting in wear and leakage—as is the case in the ordinary type of cock.

The "L.B." petrol cock works equally well in any position. The construction of this cock is clearly shown in one of the accompanying sketches, so that no further description should be necessary. It may be pointed out, however, that the disc is opened or shut, against the action



of a light spring, by the cam on the end of the lever impinging against a tube, which is in contact with the disc.

Another important "L.B." fitting is an automatic anti-leak vent for service (gravity) petrol tanks. In this device—which we also illustrate—the "L.B." disc valve is incorporated in the vent cap in such a manner that when the tank becomes full a float, in the base of the vent cap, rises and closes the valve. Thus, no petrol can possibly escape through the vent. This is undoubtedly a great advantage, as it has frequently happened that more or less serious fires have been caused by the petrol leaking over from the vent in the services tank.

In conclusion, mention may be made of another "L.B." accessory, which is applicable to both aircraft and motor-cars. This is the "L.B." Radiator filler, which is claimed to prevent troubles arising from air locks in the cooling system. Filling a radiator from the top is liable to cause air pockets, which seriously affect the proper working of the water circulation and produce air locks. With the "L.B." radiator filler the radiator is filled from the bottom, by way of a connection, to which a hose may be fitted, provided with the "L.B." disc non-return valve. This device also serves as a drainage, a "shifter" being fitted which holds the disc away from its seating for this purpose.

# THE ROYAL AIR FORCE

London Gazette, October 10, 1922

## General Duties Branch

Flight Lieut. R. J. Sanceau (Lieut., E. Surrey R.) is granted permanent commn., retaining his present substantive rank and seny.; Aug. 31. Flying Offr. L. C. Wynne-Tyson is granted permanent commn., retaining his present substantive rank and seny.; Sept. 12, 1919 (*Gazette*, Sept. 12, 1919, appointing him to short service commn. is cancelled).

The follg. are granted temp. commns. in the ranks stated, on seconding for four years' duty with the R.A.F.:—

*Flt. Lieut.*—V. A. Albrecht, O.B.E., M.C., Capt., Manchester R.; Sept. 25. *Flying Offr.*—M. H. Fitzgerald, Lieut., E. Yorks R.; Oct. 3.

The follg. are transfd. to the Reserve:—

*Class B.—Flying Offr.*—H. Hoad, F. W. Martyn; Oct. 10.

*Class C.—Flying Offr.*—A. S. Budge; Oct. 10.

Observer Offr. M. St. J. Ross relinquishes his short service commn. on acct. of ill-health, and is permitted to retain rank of Lieut.; Oct. 12.

## Medical Branch

C. Y. Roberts is granted a short service commn. as *Flt. Lieut.*, with effect from and with seny. of Sept. 21; Lieut. N. F. Smith, Dental Surgeon, Gen. List, Army, is granted temp. commn. as *Flying Offr.* on attachment for four years' duty with R.A.F.; Sept. 28 (he will continue to receive emoluments from Army funds). *Flying Offr.* (Hon. *Flt. Lieut.*) B. C. W. Pasco to be *Flt. Lieut.*; Oct. 1. *Flt. Lieut.* T. H. K. MacLaughlin relinquishes his temp. commn. on ceasing to be empld.; Oct. 6.

## Memoranda

Hon. Sec. Lieut. E. A. Bacon relinquishes his hon. commn. on joining the Territorial Army; May 9, 1921.

London Gazette, October 13, 1922

## General Duties Branch

Obsrvr. Offr. J. R. Stafford-Langan, D.F.C., is transfd. to Reserve, Cl. B; Oct. 15. *Flt. Lieut.* A. W. Symington, M.C., is placed on h.p., Scale A, for six months; Oct. 1. Obsrvr. Offr. R. Nicholson is restored to full pay from h.p.; Oct. 1. *Flt. Lieut.* F. J. Hooper is placed on ret'd. list; Oct. 4 (substituted for *Gazette*, Oct. 3).

## ROYAL AIR FORCE INTELLIGENCE

**Appointments.**—The following appointments in the Royal Air Force are notified:—

*Flight Lieutenants:* S. E. Elphick, from R.A.F. Hospital, Cranwell, to Baghdad Combined Hospital (Iraq). 14.9.22. A. C. Ransford, from School of Technical Training (Men) (Inland Area) to Headquarters, R.A.F., Iraq. (Supernumerary.) 14.9.22. J. B. Woodrow, from R.A.F. Depot (Inland Area) to Headquarters, R.A.F., Iraq. (Supernumerary.) 14.9.22. J. M. A. Costello, M.C., M.B., from R.A.F. Depot (Inland Area) to Headquarters, R.A.F., Iraq. (Supernumerary.) 14.9.22. W. D. Miller, M.B., from R.A.F. Depot (Inland Area) to Headquarters, R.A.F., Iraq. (Supernumerary.) 14.9.22. R. Boog-Watson, M.B., D.P.H., from R.A.F. Central Hospital (Coastal Area) to Headquarters, R.A.F., Iraq. (Supernumerary.) 14.9.22. R. M. Trevethan, M.C. The notification which appeared in R.A.F. Intelligence, No. 77, dated 5.9.22, wherein this Officer was posted from No. 207 Squadron to School of Photography, with effect from 25.9.22, is cancelled. J. F. Gallagher, from No. 1 School of Technical Training (Boys) (Halt) to No. 39 Squadron (Inland Area). 20.9.22. Substituted for the notification concerning this Officer which appeared in R.A.F. Intelligence, No. 79, 21.9.22. D. J. Jones, M.B., from No. 1 School of Technical Training (Boys) (Halt) to No. 1 Flying Training School (Inland Area). 20.9.22. Substituted for the notification concerning this Officer which appeared in R.A.F. Intelligence, No. 79, 21.9.22. W. A. C. Morgan, M.C., from R.A.F. Depot (Inland Area) to School of Photography (Inland Area) (Supernumerary). 16.10.22.

A. N. Benge, from No. 5 Flying Training School (Inland Area) to No. 207 Squadron (Inland Area) for duty as adjutant. 28.9.22. R. Whitaker, M.B.E., from School of Technical Training (Men) (Inland Area) to School of Photography (Inland Area) (Supernumerary). 16.10.22. D. C. Balfour to Headquarters, R.A.F., Iraq. 1.10.22. A. C. Collier, from R.A.F. Depot (Inland Area) to No. 24 Squadron (Inland Area) for duty as adjutant. 1.10.22. W. E. Hodgins, M.B., from R.A.F. Depot (Inland Area) to Research Laboratory and Medical Officers' School of Instruction (Coastal Area). 30.9.22. C. Y. Roberts, to Research Laboratory and Medical Officers' School of Instruction (Coastal Area). 21.9.22. W. H. de W. Waller, A.F.C., from No. 100 Squadron (Inland Area) to Command Headquarters, Palestine. 15.6.22. For duty as A.D.C. General Officer Commanding. Substituted for the notification concerning this officer which appeared in R.A.F. Intelligence No. 71, dated 7.7.22. A. H. Stradling, C.B.E., from Air Ministry (D. of P.) to School of Technical Training (Men) (Inland Area). 1.10.22. L. Wanless-O'Gowan, from No. 10 Group Headquarters (Coastal Area) to No. 39 Squadron (Inland Area). 9.10.22. J. A. Glen, D.S.C., from No. 39 Squadron (Inland Area) to No. 11 Wing Headquarters (Inland Area). 16.10.22. R. A. Young, from R.A.F. Depot (Inland Area) to Air Ministry (D. of P.). 1.10.22. D. Drover from R.A.F. Depot (Inland Area) to Inland Area Aircraft Depot (Inland Area). 1.10.22. (Hon. Sqdn. Leader) H. B. Smith, M.B., from No. 207 Squadron (Inland Area) to No. 1 Flying Training School (Inland Area). 23.9.22.

## AUXILIARY AIR FORCE ORGANISATION

ON Monday, October 16, recruiting for the two newly-formed London anti-aircraft defence brigades began, and it looks as if there is likely to be keen competition for enrolment in the corps. Those wishing to join the artillery of the County of London section should present themselves at the former headquarters of King Edward's Horse, Duke of York's Headquarters, Chelsea, while for the artillery to be formed by the City Association recruits should apply at Lytton Grove, Putney. For the battalions of Royal Engineers, recruits may enlist either at the old headquarters of the London Electrical Engineers, Regency Street, Westminster, or at the headquarters of the 47th (2nd London) Divisional Train, at the Duke of York's Headquarters, Chelsea.

The following officers have been appointed to command units:—

No. 2 Anti-Aircraft Defence Brigade, commanded by Col. Douglas Gill, C.M.G., D.S.O.—Lieut.-Col. W. M. Thompson, D.S.O., to 3rd Artillery Brigade; Lieut.-Col. W. B. Brittain to 4th Artillery Brigade; and Lieut.-Col. B. S. Millard, T.D., to 2nd Battalion, Royal Engineers.

No. 3 Anti-Aircraft Defence Brigade, commanded by Col. H. S. de Brett, C.B., C.M.G., D.S.O.—Lieut.-Col. Buckle to 5th Brigade, R.A.; and Lieut.-Col. W. Edgecumbe (late London District Electrical Engineers) to 3rd Battalion, Royal Engineers.

No appointment has yet been made to the 6th Brigade, R.A. Col. M. W. Emley, O.B.E., T.D., will command Nos. 2 and 3 Anti-Aircraft Defence Brigades Signal Companies.

In regard to the general plans the organisation will consist of an Auxiliary Air Force and an R.A.F. Reserve, besides the London Air Defence Division mentioned above. Each body is entirely distinct, and we understand that the Auxiliary Force will consist of five squadrons of aeroplanes, employing 60 pilots. These pilots will not be found from among ex-R.A.F. officers, but will be newly commissioned, and the personnel will be raised at big industrial centres, thus preserving the territorial idea. It is understood, *The Times* states, that these squadrons will have machines and aerodromes of their own, a consideration which will materially assist in bringing out the true squadron spirit and promoting rivalry between the squadrons themselves and between the Auxiliary Force as a whole and the Regular R.A.F.

The new Royal Air Force Reserve will consist of a large number of all ranks who have passed through the Regular R.A.F. and come up annually for a period of training and refresher courses. This they will serve with Regular units, and it is proposed that actual flying practice and work in connection with the assembling, repair and overhaul of machines shall be done in the aerodromes belonging to aircraft manufacturers. The machines used in this case will be the property of the manufacturers in question, whose pilots will supervise all practice. Their mechanics will be enlisted to take part in the exercises while they are in progress. Pilots and mechanics will, for the time being, revert to whatever rank they held in the R.A.F., and will be paid accordingly. Payment will also be made by the Air Ministry for the use of the aeroplanes.

## LEGAL INTELLIGENCE

### Unlicensed Pilot

At Croydon County Police Court, on October 14, Thomas Baden Powell, 22, of the Bridge Hotel, Tunbridge Wells, was summoned by the Air Ministry for flying on August 20 from Croydon to Penshurst without a pilot's licence, and also for flying in an unregistered machine.

Mr. W. Paling, for the Treasury, said that last March the defendant applied for a registration certificate for his machine, but failed to enclose the fee of one guinea, and no registration took place. He also applied for a private pilot's licence, and was informed that a condition would be the production of the Royal Aero Club's certificate of competency. Some months afterwards, as no certificate had been received, the Air Ministry warned him that it would be an offence to fly without a licence. On August 20 he flew from Croydon to Penshurst, and his machine crashed on arrival.

The defendant said he had not undergone any pilot's test. He had flown about twelve times between Penshurst and Croydon, and had not been stopped by anyone. He knew nothing about the rules. He had been flying for about fourteen months at Penshurst, and had taken up a passenger once or twice.

The Chairman (Sir Arthur Spurgeon) said the magistrates were much concerned about these revelations because they seemed to indicate that the regulations would require a good deal of overhauling.

Mr. Paling said he would convey that opinion to the Air Ministry.

The defendant was liable, the Chairman said, to penalties totalling £400, but as this was the first case of its kind he would be fined £20 on each summons—£40 in all; but any further cases of the kind would be treated drastically.

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### AIR MINISTRY NOTICES

#### British Aircraft Personnel: Visas

1. UNDER reciprocal arrangements made with the Governments of Holland, Italy and Norway, the pilots and other operative members of the crews of British aircraft no longer require a *visa* when flying to these countries.

NOTE.—A *visa* is not required for British subjects travelling to:—

France.

Belgium (*unless a stay of more than three months is intended*).

Switzerland (*unless taking up residence or employment there*).

2. Passports are essential in each case.

(No. 110 of 1922.)

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#### International Commission for Air Navigation

NEXT week, on October 24, the Members of the International Commission for Air Navigation who are attending the Meeting in London will be officially entertained at dinner at Lancaster House (London Museum), St. James's, by the First Commissioner of Works on behalf of His Majesty's Government. Capt. the Rt. Hon. F. E. Guest will preside.

#### A Real Flying Minister

IN M. Laurent Eynac, the Under-Secretary for Aeronautics, France has a very live Air Minister. His latest effort this month is a flight of 1,875 miles over the Protectorate of Morocco, which he accomplished in five days. He flew from Toulouse to Rabat on October 3, from Rabat to Casablanca on October 4, from Rabat to Marrakesh and back on October 5, from Casablanca to Fez on October 6, and returned on the following day to Malaga, where he took train for Madrid to visit Señor Ruiz Fery, President of the Aero Club of Spain.

Fortunately, England now also has an equally enthusiastic Chief in Gen. Sir Sefton Brancker, although his air activities naturally have not so full a scope as our French friends. But that will come.

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### PUBLICATIONS RECEIVED

*Advisory Committee for Aeronautics. Reports and Memoranda.*—No. 541, *Stability and Resistance Experiments on a Model of Vickers Rigid Airship*, R.80. By J. R. Pannell, R. Jones and G. N. Pell. August, 1918. Price 6d. net, post free 7d. No. 790 (*Ae. 47*), *On the Determination of the Stresses in Braced Frameworks*; Part II, *The Effect of Shear upon a Framework of Uniform Rectangular Cross-Section*. By R. V. Southwell. February, 1922. Price 6d. net, post free 7d. No. 791 (*Ae. 48*), *On the Determination of the Stresses in Braced Frameworks*; Part III, *The Effect of Axial Loading, Torsion, Flexure and Shear upon a Braced Tube of any Uniform Cross Section*. By R. V. Southwell. April, 1922. Price 6d. net, post free 7d. London: H.M. Stationery Office, Kingsway, W.C. 2.

### SOCIETY OF MODEL AERONAUTICAL ENGINEERS (London Aero Models Association),

SUNDAY, October 22, at 10.30 a.m., a Flying Demonstration will be given at Bunkers Hill, Hampstead.

Sunday, October 29, the Competition for Mr. D. H. Pilcher's Challenge Cup for enclosed fuselage models will be held at Hackney Marshes at 12 o'clock noon. For full particulars, rules, etc., see *FLIGHT*, September 28.

Paddington and District Model Aero Club, of which Mr. W. E. Evans is Secretary, have started operations on their old ground at Sudbury. Their official observer, Mr. M. Levy, reports that Messrs. Carter, Evans, Gray, Woolley and himself were flying models last Saturday. Mr. Gray's large enclosed machine put up some excellent flights, one of which was over 450 yards. At Hampstead, on Sunday, a large and enthusiastic meeting was held, when again some excellent results were obtained, particulars of which it is hoped will be ready for publication next week.

Arrangements have been made for a number of members to go by char-à-banc to Itford on Saturday, October 21, to witness the *Daily Mail* Gliding Competition. The char-à-banc will leave from outside the Royal Air Force Club, 128, Piccadilly, at 8.30 a.m. The arrangements are in the hands of Dr. Thurston and Mr. L. G. H. Hatfull.

The Hon. Sec. hopes to have a programme of lectures, debates, etc., ready for publication as soon as final dates are fixed.

Headquarters, 20, Great Windmill Street, Piccadilly Circus, W. 1.

Hon. Sec., A. E. Jones, 48, Narcissus Road, West Hampstead, N.W. 6.

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### AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: cyl. = cylinder; I.C. = internal combustion; m. = motors. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

#### APPLIED FOR IN 1921

Published October 19, 1922

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|---------|--|--|
| 11,054. | E. A. PERRIN.                            | Propulsion and steering of helicopters. (161,967.)                 |
| 13,737. | C. ZEISS and G. KILLAT.                  | Sighting-device for dropping projectiles from aircraft. (186,099.) |
| 17,046. | VICKERS, LTD., and P. W. GRAY.           | Turn indicator. (186,159.)   |
| 22,788. | J. A. HERRING.                           | Inclinometers. (186,235.)  |
| 27,154. | LUFTSCHIFFBAU ZEPPELIN GES. and L. MERZ. | Engine gondolas for airships. (170,839.)                           |
| 30,026. | G. SHIELDS and C. L. MORRILL.            | Rotary engines. (186,268.)   |

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